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ARCHAEOLOGICAL RECONNAISSANCE OF LAKES MISTASSINI AND ALBANEL, PROVINCE OF QUEBEC, 1947

Edward Rogers and Murray H. Rogers

As a result of possibilities seen during a canoe trip from the Ottawa River through Grand Lake Victoria and down the Harricanaw River during the season of 1946, the authors, in 1947, completed a second trip to James Bay by way of Lakes Mistassini and Albanel and the Rupert River (Fig. 11). This trip would not have been possible and certainly we would have missed many pleasures if it had not been for the cooperation of the Hudson's Bay Company. We remember with pleasure our contacts with Messrs. McLeod, Jeffreys, and Duncan and we are particularly grateful to Mr. and Mrs. Parson, Mr. Glenn Speers, and Mr. and Mrs. Archy Michiel for their unparalleled hospitality. Space does not permit acknowledgment of the assistance of many who took an interest in our journey but we must mention Mr. Carrier, the personnel of the Department of Transport, and Dr. Watson of the Dome Exploration Limited. To Mr. E. E. Kallio we are especially indebted for gracious assistance at a critical moment. Mr. Frederick Johnson of the R. S. Peabody Foundation advised us concerning procedure in the field and he has aided greatly in the preparation of this report.

One purpose of the journey was to gather information concerning the distribution of waterfowl. Of great importance was the collection of archaeological information from a region about which practically nothing was known. Plans included the search for prehistoric camp sites and the gathering of information concerning the present day Indians. It was believed that the latter would be of aid in the interpretation of the significance of sites and specimens recovered.

The route led northward from Oskelaneo on the river of the same name through the Gouin Reservoir and Lakes Obatogamau, Chibougamau, and Waconichi to Mistassini. From the Hudson's Bay post on the southeastern arm of Mistassini we traveled northeasterly into Lake Albanel and for a short distance up the Temiscamie River. Returning westward we crossed Mistassini to the headwaters of the Rupert River which was followed to Rupert's House on James Bay.

The land throughout this region is typical of the Canadian Shield. The southerly portions are of low relief, with no rise exceeding a few hundred feet. To the north, the hills increase in number and height; low but rugged mountains are reported north of Mistassini, about the headwaters of the Eastmain River. The country which was seen is characterized by bare hill-top

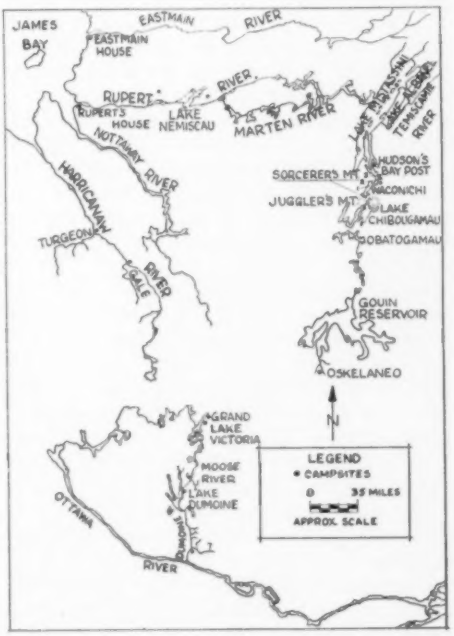

Fig. 11. Map of the south central part of the province of Quebec.

outcrops of the common Archean and Proterozoic rocks and by areas blanketed by glacial drift and old lake deposits.

The predominant trees of the region are the black spruce, white spruce, and balsam fir of the taiga. The common undergrowth comprises labrador tea and sphagnum moss. In the swampy regions, tamarack, arborvitae, and larch are found. Banksian pines grow, usually on sandy slopes. When this forest is burned it is succeeded by poplars and birch, including the canoe birch. Along the streams and lake shores alder and willow are very common. In the Mistassini area the spruce average some 25 to 30 feet high and from 4 to 6 inches in diammeter; larger trees are found in sheltered spots. Blueberries are found throughout this whole region and strawberries and raspberries are occasionally seen.

Moose are common between Oskelaneo and the Temiscamie River but are not so frequent along the Rupert River. Antlers of the woodland caribou were seen in Indian camps on the east side of Lake Albanel and also on the Harricanaw River. Deer have not been reported north of the lower half of the Dumoine River. The black bear is common all over the area. Beaver range throughout this entire region, being more abundant on the lower Rupert where the Hudson's Bay Company administers a preserve in order to conserve them. Gray wolves have been reported in certain parts of the country, but only when the winters have been severe. Muskrat, mink, otter, fisher, woodchuck, marten, eastern red squirrel, fox, and lynx are the fur-bearing animals of this territory.

Wherever one goes bird life abounds. Of the ducks the most common are the American golden-eye and American merganser, while in certain sections, black ducks predominate. Canada geese migrate over this country but nest only on the lower part of the Harricanaw River. Spruce partridge and ruffed grouse were seen as were a number of bald eagles, hawks, ospreys, loons, and herring gulls. Terns were seen in large numbers, especially on Lake Obatagamau. Spotted sandpipers ran along the shores wherever one went; there were, in addition, numerous song birds. One greater yellowlegs was identified on the Temiscamie River.

Little has been written about the region, but the trails and camp sites figure in the history of the Indians, of exploration, and of the expansion of the fur trade. In 1668 Medard Chouart[1] landed from the ketch "Nonsuch" at the mouth of the Rupert River to establish the first permanent trading post. This became eventually the Hudson's Bay post known as Rupert's House (Fig. 11).

In 1671 Father Charles Albanel and Sieur de St. Simon left Tadoussac, on the Gulf of St. Lawrence, for a journey into the country. They spent the winter on Lake St. John, the headwaters of the Saguenay, and in the spring of 1672 continued on over a height of land which led them into the southern end of Lake Mistassini. From here they descended to James Bay. Albanel's description of the route, when compared with ours, is reason for suggesting that, on this trip, Albanel went from Lake Mistassini to Lake Nemiscau by way of the Rupert River. At that time the lower part of the river was known as Nemiskausipiou. On Lake Nemiscau, Father Albanel saw an Indian village which the Iroquois had laid waste some years before. Albanel describes a stockade the Iroquois had built on a rocky island which was used as a base for numerous raids.[2] In 1674, Albanel went north, again from Lake St. John, by way of the Peribonka and Manouan to Lake Albanel. From here he went on to James Bay where he was captured by the English.[3]

Joliet, famous for his exploits on the Mississippi, traveled northward by way of the Saguenay in 1679. He crossed Lakes Albanel and Mistassini and descended the Martin and Rupert rivers to James Bay.[4] During this trip missions were established on Lakes Nemiscau and Albanel. In 1792, according to Hind, Michaux followed the same route to James Bay as that used by Albanel in 1672. This is to be questioned. Michaux's description of Lake Mistassini quoted by Hind, certainly does not agree with conditions as they exist there today.[5] Several years ago Abbe Ernest LePage and Artheme Dutilly ascended the Rupert and Marten rivers in hopes of determining whether or not Michaux had descended to the bay by this route.[6]

During 1884 and 1885, A. P. Low's expedition traveled over much of this territory. He made

[1] Wilson, 1899, p. 47.
[2] Thwaites, 1899.
[3] Burgesse, 1947, p. 12.
[4] Burgesse, 1947, pp. 12–15.
[5] Hind, 1863, Vol. 2, pp. 147–9.
[6] Lepage and Dutilly, 1945.

his way from Lake St. John to Lake Temiscamie and from here down the river of the same name to Lake Albanel. He crossed to the head of the Rupert River which he followed as far as the portage into the headwaters of the Marten. This river was followed until it joined the Rupert above Lake Nemiscau. He then continued downstream to James Bay.[7]

During the past few years Dr. Jacques Rousseau of the Montreal Botanical Gardens has made several trips to the Lake Mistassini region.[8]

In 1944 the 275 Indians living around Oskelaneo River and Gouin Reservoir were known as the Obedjiwan band of the Têtes de Boules.[9] In 1911 the population of the Têtes de Boules was reported by Hodge[10] to have been 287. This is considerably less than the 1944 count if the other members of the Têtes de Boules, especially the Manawan band, are added to the Obedjiwan band. These Indians, known as "Bullheads" by their white neighbors, speak a dialect of Cree and some French but no English. Marriage with the Mistassini and Waswanipi bands is known to have taken place. The Têtes de Boules live chiefly by hunting, trapping, and fishing over areas allotted to them by the Hudson's Bay post. Upon occasion they work for the Hudson's Bay Company; for example, they have been picking blueberries during the past two years.

The Mistassini band of Indians gathers, during the summer, about the Hudson's Bay post at the southern end of Lake Mistassini. At present they number about 543 and are said to be increasing in number. The origin of the band is somewhat obscure. In 1640 the French reported Indians living about the lake[11] but it was not until years later that missionaries were sent among them. It is said, concerning these Indians, "that when attacked by Iroquois in 1665 they had a wooden fort which they defended successfully and with great bravery."[12] Tradition has it that when the Hudson's Bay post was established on Lake Mistassini, about 1812, the Mistassini band broke away from the Rupert's House band. This opinion, which could not be checked carefully, may be simply an inexpert observation of the changes in primitive economy which took place during the early days of the fur trade. The Hudson's Bay Company established the post at Mistassini in order to reap benefit from the trapping grounds which were much more productive than those down the Rupert River. It is quite probable that the Indians chose to trade at this post, if they were not directed to do so, rather than make the long trip through difficult country to Rupert's House or Lake St. John.

Indians do come to Lake Mistassini from other regions, especially Lake St. John. They travel by way of the Peribonca River some 300 miles to spend the winter on the Temiscamie.[13] Several other routes which cannot be clearly identified are probably also used. An early record of an Iroquois raiding expedition on Lake Mistassini[14] implies that they traveled over one of these routes. Possibly they entered the country by way of the St. Maurice River.

The Mistassini band takes its name from that of the lake, which is derived from the Cree meaning "big stone." This great rock is located on the west side of the lake at the head of the Rupert River. On passing this stone the Indians throw it an offering of tobacco as a sacrifice in order to insure a safe journey.

The native subsistence pattern is that common to the American taiga. Between the time when the post was established at Mistassini and a few years ago, the Indians did aid in freighting supplies first up the Rupert River and, subsequent to 1928, in from Oskelaneo. Now the freight is brought in by air and the Indians have been forced to rely more on their native mode of existence, i.e., hunting and fishing for their food. Each family hunts over its own territory during the winter. These territories, at the present time, extend north as far as Lake Nichicun, south to Chibougamau, and west to the upper reaches of the Rupert River.

That they cling to their old customs is attested by numerous aboriginal features of their only partially Europeanized culture pattern and by the fact that but very few can speak a limited amount of English. Accounts of ancient shamanistic beliefs refer to a hill called "the thinker" located a few miles north of Dore Lake. This may be either one of two hills named "Juggler's Mountain" and "Sorcer's Mountain" located north of Dore Lake on a

[7] Low, 1885.
[8] Rousseau, 1945, pp. 64–91.
[9] Canadian Government, 1945*a*, p. 24.
[10] White, 1913, p. 452.
[11] White, 1913, p. 306.
[12] White, 1913, p. 306.
[13] Cabot, 1909, p. 203.
[14] White, 1913, p. 306.

map drawn by Low in 1884 (Fig. 11). The story goes that there is located on top of this hill a tower supporting a small house which has no doors or windows. When the shaman wishes to converse with the spirits, he comes to the house. In order that he may enter, through the roof, he has some men help him remove the top of the inclosure. He remains inside for two days without food or water and then returns to his followers and relates all that he has seen, heard, or dreamed.

A band of Indians about 100 strong is located on Lake Nemiscau. It is closely connected with the Rupert's House band, which numbers 383. Because of the beaver preserve which was established on the lower part of the Rupert River by James Watt a number of years ago, the Indians at Rupert's House are wealthier than those on any other part of Hudson's Bay. They still live by hunting and fishing. The hunting of the beaver is controlled by the company which assigns each family a number of beaver houses and limits the catch usually to ten skins per year. Other Indians work for the Hudson's Bay Company by cutting wood or they build excellent canvas canoes for sale.

During the summer months, the native population of the region gathers about the nearest Hudson's Bay post to trade furs, buy supplies, catch fish, and perhaps do a little work for the post. During this time, fish is the main article of diet. It is caught in gill nets. These are from 50 to 100 feet long, by 3 to 4 feet wide. The people live in canvas wall tents with a door in the vertical front. Occasionally the rear wall is extended in the form of a quarter of a sphere. The only means of travel is by canoe. Now outboard motors supply the power. Summer camps are located on a piece of rising ground, having a southwestern exposure. Trees are cut off the camp ground so that breezes may rid the area of annoying insects. Tents are usually pitched close together but some families may be located in separate, nearby spots.

Camp sites are placed along the main routes of travel and are of two more or less distinct types. One is an overnight camp, used when traveling. On lakes these are placed about a day's travel apart. Along routes involving portages, camp sites are located at each end. Overnight camps are placed close to the water's edge and are apt to be flooded during the spring.

The other type of camp site, established near the winter hunting ground, is generally occupied by several families. It may be located on rising ground some 4 to 10 feet above the midsummer water level and from 25 to 100 or more feet back from the shore of the lake or river. When fresh water is available such a camp may be set up anywhere along a portage. Spruce groves with a northeastern exposure are most commonly selected but birch groves may also be chosen. Locations having a western exposure are avoided.

On the lower Rupert, occasionally on the upper Rupert, and upon the Harricanaw River, Indian houses are made of saplings, arched over to form a dome-shaped frame which today is covered with canvas (Pl. VIII, K). From two to five or more of these structures will be grouped together forming a winter community. Beds, winter and summer, are made on the ground of spruce or, preferably, of balsam boughs. One, two, or three families may live together in one of these houses, each family having its own stove. The stoves are mounted on four wooden stakes and are 8 to 10 inches above the ground. In the Lake Mistassini region only wall tents are used, even during the winter. Sometimes the lower part of the wall is reinforced with logs.

True log cabins are rare. One, on Lake Obatagamau, was about 10 feet square. The ridge of the peaked roof was about 10 feet high. The floor was sunk several feet into the ground. A fireplace was located in the center, the smoke escaping through a hole in the roof directly overhead. Another form of log house was seen on the lower Rupert. This was conical and made of long poles placed close together. The poles were covered with canvas and on top of this there was a layer of moss, sod, and dirt (Pl. VIII, L).

Cache racks are to be seen at almost every camp. A platform of logs, either fitted closely together or spaced a few inches apart, is supported some 5 feet above ground on stakes. Drying and cooking racks about 4 feet high are built with a platform composed of long spruce poles laid across the rack at intervals of a foot or so. The Indians build caches above ground, usually on some isolated island near their winter camp. Winter equipment is stored on these while the owners spend the summer at some trading post. South of Obatogamau a moose had been hung in a tree and abandoned.

On the Temiscamie River and to the south the chief winter food is moose. On the lower Rupert River, where moose is not so plentiful, the Indians rely more upon the bear and beaver

Sites on Lakes Mistassini and Alabanel and on Rupert River, Quebec. A, moose horns supported in tree trunks split by wedge. B, Site 14. C, D, and E, skulls of bear and other animals fastened to trees. F, Site N. G, Site 12. H, Site 7. I, Site 12. J, quarry site. K, framework of house. L, earth-covered house, Rupert River. M, Site 9. N, Site G.

for their staple food. Loons are considered a great delicacy and no efforts are spared to capture one. In addition, flour, tea and sugar are obtained at the trading post. Evidence of the large numbers of moose killed, particularly about Albanel and Mistassini, can be seen in the many shoulder blades which are pierced and hung in trees in nearly every camp. Bear skulls were seen attached to poles in a number of camps along with skulls of beaver and other fur-bearing animals. Caribou antlers and loon skulls were also hung up in the same way (Pl. VIII, A, C-E). The practice of preserving animal skulls in this manner has been discussed by Hallowell and others.[15] This was done to propitiate the spirits of the animals. A custom no doubt allied to this was observed on the lower Rupert. A few small bones of animals were tied up in a piece of cloth and the bundle suspended from the roof of the lodge.

The Indian who roamed these woods in days gone by camped on spots which are still being used by his descendants today, as is shown by the fact that nearly half of the prehistoric camps that were found are still being occupied. Most of these camp sites must have been used during the late summer, winter, or early spring. All but a site connected with a quarry were located at the water's edge.

The shores of Lake Mistassini are composed of gravel which is being rapidly washed into the lake. On Albanel the shores are similar except that bed rock outcrops are commonly exposed so that the mantel of gravel which is being eroded rests on ledges and is frequently higher above water level than that on Mistassini. The levels of Lakes Mistassini and Albanel fluctuate 8 feet or more during the seasons. Consequently many sites along the shores are being eroded and the archaeological specimens are washed out of the banks. The sites we found during July were close to the water's edge and some were flooded by as much as 2 feet of water. However, it was possible to excavate sections of several camp sites, parts of which lay above high water level. In general, the specimens were found under the duff and in most cases on top of a deposit of sand and gravel. It is of course possible that sections of camp sites located above high water level may have been used during the summer. Furthermore, we may surmise that the working area about a camp located on high ground would expand onto land exposed by the receding water during the late summer.

In general the exposures of the prehistoric sites are different from those used by modern Indians. The prehistoric camps seemed to favor a northeastern exposure but not in every case was this true. Summer camps of the present day Indians have, as a rule, southwestern exposures. In winter, protection from the northwest winds is desirable. In view of this it is strange to note that except for the prehistoric sites noted above only one had a southwestern exposure, one faced west, and one south. From this and the location of the water level, it might be concluded that the majority of these camps were used during the fall and winter.

The first indication of presumably prehistoric Indian occupation north of Oskelaneo was on the first portage from Lake Waconichi on the way into Lake Mistassini (Fig. 11). Here, at the top of a rise in the center of the trail, we picked up a medium-sized chip. This was all there was to be found anywhere in the vicinity. On the second portage numerous chips were found scattered along the trail. These were distributed over a distance of 15 feet on a low slope coming down to a point about 6 feet back from the water's edge. Chips appeared to have been washed out near the top of the hill. There were modern Indian winter camps on both of these portages.

Rather small chips were strewn along the third portage from end to end. The chips were exposed where the trail had been worn away by use. The land was very flat and therefore the chips were located near where they were discarded. Some of the chips at the north end of the trail were lying on the beach beneath the water. On the south end a small pocket had been partially exposed by erosion. On digging into this area more chips were uncovered. The surface was composed of half an inch of humus under which there were several inches of black earth which rested upon a deposit of sand. The chips were found in this black earth (Fig. 12, A).

Despite close examination only two sites were found on the easterly shore of Lake Mistassini between the Hudson's Bay post and Albanel Rapids (Fig. 13). The apparent lack of sites may be due to the extensive erosion of the sandy and gravelly shore by wind and wave action. A suspicion that there had been a recent, even modern rise of water level in the lake which would obliterate the sites could not be substantiated. It is probable that both

[15] Hallowell, 1926; Speck, 1935.

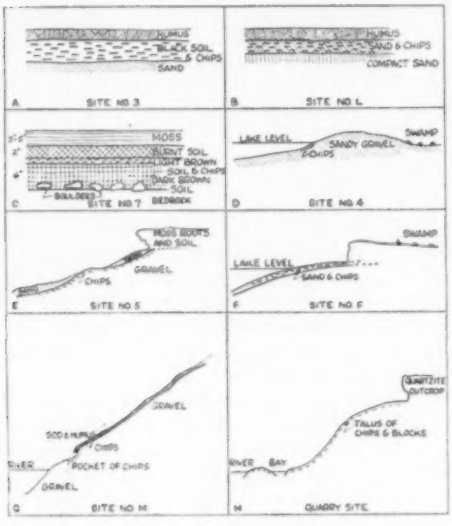

FIG. 12. Diagrammatic cross section of various sites in south central Quebec.

Sites 4 and 5 had been larger, for the chips and specimens were under water, having been washed out of the bank.

Site 4 was found in a small bay facing east. It was located on a gravel ridge presumably made by a combination of wave action and ice push (Fig. 12, D). In back of the ridge the land was swampy. Chips and the two broken artifacts found were strewn along the beach and mixed with the gravel for a distance of about 300 yards. The specimens exhibit varying degrees of polishing due to rolling in the water and sand.

Site 5 was located about one-half mile from the portage around Albanel Rapids. Here the shore line extends in an east-northeast direction. The evidence of occupation came from beneath a bank 2 to 3 feet high composed of tangled roots and moss resting upon a deposit of sand and gravel. The surface of the bank, beneath the water, yielded a number of chips and one broken artifact (Fig. 12, E). The remainder of the chips and artifacts came from the gently sloping shore and some of them appeared to have been covered with a deposit of sand which is being washed in over the gravel at the present time.

The portage around Albanel Rapids has been an important route since prehistoric times. At Site 6, near the Albanel end of the rapids, there had been a prehistoric camp near the shore. A modern camp was located on higher ground a short distance back in the bush. Chips and a few artifacts were caught in the thin patches of vegetation which partially covered a large outcrop of igneous rock. In the wide crevices in this ledge specimens were buried to a depth of some 15 inches. Excavation of these pockets revealed a number of strata. The upper layer was composed of matted roots and moss, covered with grasses. This rested upon a stratum of black soil, probably the result of a forest fire. The black soil gave way to a pinkish earth in which the greater part of the specimens were found. Beneath this was a layer of dark brown earth resting upon the bedrock.

The actual artifacts excavated were all from the pinkish stratum mentioned above. These are a notched arrowpoint (Pl. XI: 15), an asymmetrical leaf-shaped blade (Pl. XI: 22), and the butt of a large knife or spearpoint (Pl. X: 29). This specimen is of particular interest for it has been made of a flake and is retouched on one side only. A fourth artifact is a fragment of a crudely retouched knife (Pl. XI: 25). The most interesting specimen is a small gun flint (Pl. XI: 8). Two quartz crystals were also excavated from this layer (Pl. XI: 9, 10).

Site 7 was found on the eastern shore of a point (Pl. VIII, H). This point was east of the end of the last portage around the rapids. Back of the rocky shore there is a bank 3 to 4 feet high. In addition to the stone artifacts dis-

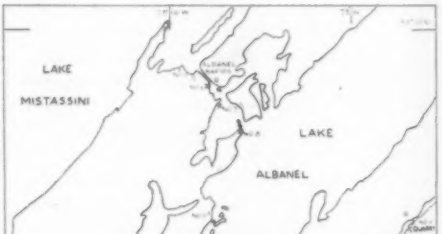

FIG. 13. Location of some prehistoric and modern camp sites on Lakes Mistassini and Albanel, Quebec.

covered here there was a modern Indian winter camp. Chips and artifacts, washed out of the bank, appeared along the shore over a distance of about 200 yards. The site extended back into the bush an unknown distance. Specimens were found in the roots of an overturned tree 25 feet from the edge of the bank. Excavations closer to the bank also produced evidence of occupation and a stratification of soils (Fig. 12, C). Beneath the duff there was a burned layer which was underlain by a layer of light brown soil. In the latter were found two to three hundred chips and eight artifacts (Pls. VIII: 35; XI: 7, 14, 17, 19, 21, 26, 27). The culture-bearing stratum rested upon a layer of dark brown soil which was underlain by boulders and bedrock.

Site 8 was located on a point forming the southern shore of the narrows leading into Albanel. The bedrock shore rises about 6 feet above the lake. This ledge is capped with a mantle of sandy soil and humus. Driftwood and other debris piled against the bank marked the position of highest water level. Chips and artifacts were found on the surface from the end of this point along the shore in a southwesterly direction for about 75 yards. In a small bay in an otherwise straight shoreline, 50 yards from the point, there was a short sandy beach some 20 feet wide. Chips mixed in this sand had apparently been washed out of the bank during a period of high water.

Site 9 was situated in a small bay, the shore of which was a short sandy beach between two outcrops of bedrock (Pl. VIII, M). Back of this beach the bank rises abruptly about 2 feet to a level surface. Chips and artifacts were found in the sand of the beach and below the July water level. Nothing was found beneath the bank and it is possible that this site had been completely eroded away.

Site 16 was found on a narrow peninsula, the base of which would have been flooded at high water. This site was on a gravel bank 3 feet high which was being eroded away. A few chips and several artifacts were mixed in the sand of the beach in front of the bank.

Site 15 consisted of a concentration of chips and artifacts along the outer shore of a point which formed the western boundary of a small bay. The site was exposed from the northwest around to the northeast. A modern Indian camp had been located south of the prehistoric one on the west shore of the bay so that it was much more protected. A very few chips were found at the bottom of the bay and some were discovered along the other shores of the eastern point.

The site was located on a bank 2 to 3 feet high. The area back of the bank had been eroded away by wave action exposing a beach made up of large boulders. Among these and in places where the bank had slumped, a few artifacts and chips were found.

Site 14 (Pl. VIII, B) is quite similar to No. 15 in that the principal evidence of occupation appeared on a point to the west of a small bay. A modern Indian camp is located some 50 feet back from the shore and 10 feet above the water. No artifacts were found about the modern camp. Artifacts were obtained over a distance of about 300 yards on the northeastern and northern shore of the point. They were distributed along the pebbly beach from the bank out into the water. On the western shore of the bay a small stream running through sand exposed a few chips. On the eastern point a number of chips were found among the rocks along the shore.

Site 13 was located on the northern end of a large island at the mouth of the Temiscamie River. At this place a bank rose 2 to 3 feet above a rocky beach. From the edge of the bank the land sloped gently upward to the center of the island which was about 8 feet high. Along the beach for a distance of about 100 yards there were a few chips, most of which were close to the bank. No specimens were found in the water.

Site 17 was located in the southwestern part of Lake Albanel about one mile south of 50° 50′ N. The point upon which the site was found is on the north side of the bay leading to the "Long Portage" into Lake Mistassini. The shore in front is composed of bedrock covered in places with a layer of sand. This slopes up to a bank which is about one foot high. Above the bank the land slopes gently upward. Chips and a few artifacts were scattered in the sand from the foot of the bank out into the water. A modern Indian winter camp site was located in the woods away from the bank.

A body of water we have named for convenience, Indian Lake (Fig. 14), is located about 4 miles up the Temiscamie River. It is about 2 miles long. The lake is formed by the confluence of the Temiscamie River and an unnamed river which runs in from the south. The shores of the lake, along which seventeen camp sites were found, are typical of the whole region, being

stretches of sandy or gravelly beaches back of which there are fairly level spots fit for human habitation. In other places the shore is swampy and generally would be considered uninhabitable. However, artifacts were found in some of the wetter and muddier areas and one can only conclude that either of these places were inhabited by extremely hardy people or when camps were established the conditions were greatly different than they were when we visited them. It is possible, of course, that these unusual places were used during the winter.

The lake is surrounded by low hills. In places these come down to the water which is deep in front of them but in a number of sections there are gently sloping terrace-like areas which provide excellent camp grounds. Many of these are near springs or brooks.

Excellent or good places to camp are located at Sites B, C, D, G, H, I, K, L, and O (Fig. 14).

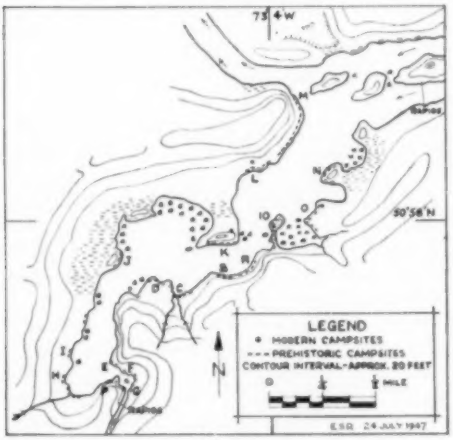

FIG. 14. "Indian Lake," Temiscamie River, Quebec, showing the location of prehistoric and modern camp sites.

Modern camps are located near K, L, and O. In front of these sites there are sandy beaches except at G (Plate VIII, N), K, and O where the beaches were pebbly. These beaches lead up to a low bank. Back of this, the land is level or sloping except at B, where the space suitable for camping is very narrow, being bordered by swampy ground. Artifacts were found on the beaches between the water's edge and the bank. At B and O the artifacts were close to the bank above present water level; at C they were all submerged in the lake and none was found near the bank. At H and I, excavation in the beach brought to light pockets containing a number of artifacts. These seemed to be the result of accidental deposition.

A small excavation was made at L, where chips were found on the beach between the water's edge and the bank (Fig. 12, B). On the surface back of the bank the humus was about 5 inches thick. Underlying this was a thin layer of sand and it was in this stratum that artifacts (Plate XI: 20, 28) and a number of chips were found. Concentrations of chips were separated by areas in which very few were found.

Four sites, A, E, M, P, were located on shores which appeared to be too steep for the establishment of comfortable camp sites. Back of the shore, the hills rose abruptly to heights of about 60 feet. At A, the beach in front was sandier than at the other three sites, which were rocky or made up of coarse gravel. At A and E, the chips and artifacts were found along the beach. At M, chips were scattered along the beach and two pockets containing 23 artifacts were excavated from beneath the edge of the slumping bank which was covered with sod (Fig. 12, G). At P, the artifacts were found on the beach close to the bank.

Sites 10, J, and N (Pl. VIII, F) were located on islands in Indian Lake. At 10, a modern winter camp had been established. Artifacts were found on the gravelly beaches in front of the bank at N. At J, chips appeared in a section of the bank which had been washed out. At 10, chips were found distributed from beneath the water level to the bank. On top of the bank, the top soil was some 4 inches thick and was underlain by gravel. Artifacts were found on the surface of this gravel. Aside from tools and chips, a number of blocks were found. These were apparently blanks which had been brought to this site from a quarry.

Site F was a particularly wet and muddy area. At each end of the site there was a gravel beach and in the center, a small area of sand. In between, soft, black, wet silt had been deposited on gravel (Fig. 12, F). In one of these muddy stretches a concentration of black flint chips, a few chips of other material, and a single broken artifact were found. A few were seen on the surface but most of the specimens were recovered by treading on them with bare feet. Back of the shore, the bank rises about one foot, being composed of soggy duff and rotted vegetable material. The whole area was a

swale, which was kept wet by a spring back in the bush. It is possible that the silt had been deposited in the area by the river to the south and it is likely that the river action and the poor drainage from the spring accounts for the swampy and muddy nature of the site. We are at a loss to know how anyone could camp at this place even in the winter.

This description of the sites about Indian Lake brings to light a small area which quite obviously had been the scene of intensive occupation. From our present knowledge of the manner in which Indians subsisted in this region the concentration of population here is most unusual. This is particularly true if all or even a few of the sites were inhabited at the same time. An inspection of the collection of artifacts does not bring to light differences in type which would indicate habitation over an appreciable span of time. However, it is possible that the area was used only by a few families at a time and that during the years there was little change in the products of the stone industry. Perhaps such an hypothesis may be substantiated by observing differences in the sites themselves. That is, those which show the greatest amount of erosion may well be older than the others. We hasten to add that measurements of time of this kind, by the erosion of banks on a lake, are most untrustworthy.

It may be noted also that the area about Indian Lake has an excellent supply of animal food. Even today, in the modern camps, the scapulae of numerous moose, pierced and hung in trees, are mute evidence of the quantity available. The supply of food in the region has also been confirmed by native testimony. There are, in addition, plenty of fish in the lake and during the migratory seasons there should be many ducks and geese.

It is possible that the location of Indian Lake in relation to natural routes of travel through the country was also an important factor. From here, one may travel to Lake St. John, Nichicun, or west into Mistassini over easy and well known trails and rivers. Whether or not the area was a place of refuge from the attacks of the Iroquois, such as that in 1665, may never be known.

About 10 miles up the Temiscamie River from Indian Lake there are three sites. No. 11, on the left shore, is situated on top of a sandy bank some 15 feet above the river. Chips and artifacts were located on the surface of the sand beneath the top soil. Others had been washed out and were in the sloping face of the bank.

A second site, probably a workshop, was found east of No. 11 on top of a hill about 65 feet above the river. This hill is part of a ridge which parallels the river and runs northerly in back of site No. 11. To the south, the summit of the hill rises to about 100 feet, at which point is located the quarry to be mentioned below. The workshop covered an area some 30 feet in diameter. The ground was littered with chips and what appear to be unfinished or rejected artifacts. This material was either exposed on the surface or covered thinly with moss.

To the south, three-quarters of a mile from No. 11, there is a narrow opening to a small bay about 500 yards long and 400 yards wide. The shore of the bay has been called site 12 (Pl. VIII, G), for everywhere there may be found great quantities of chips, sometimes even a layer of them an inch or more thick. Also a large number of artifacts were collected around this shore. Hammerstones were common; only five were collected. The chips and artifacts were included in the sod and in the soil beneath. The land upon which this site is situated is very low and certainly would be flooded by seasonal high water.

The outcrop on the ridge, from which quantities of material have been found quarried, is located on the northeast side of the bay. In the face of the outcrop, fronting on the bay, the Indians have dug two shallow caves (Pl. VIII, J). All around this there is an immense quantity of large flakes, blocks, cores, hammerstones, and the debris from primitive quarrying operations. It is possible that a small amount of the material may have been riven off the outcrop by frost action. This debris forms a thin talus slope extending down the hill to the bench bordering the bay (Pl. VIII, I; Fig. 2, H).

On the Rupert River very little evidence of prehistoric occupation came to light. A single broken artifact was found on the left bank, 35 to 40 miles upriver from Lake Nemiscau. At the head of Nemiscau several chips were found on the western end of a sandy beach on the right-hand side of a small bay. A modern Indian camp is located at this place. A few chips were found on the surface of a sandbank located on the right shore of the river about 25 miles below the Hudson's Bay post at Nemiscau. An Indian grave is located east of this spot, and north of it, across a depression, is a modern camp.

We may add to this description a few notes made during the 1946 trip. A number of chips and several artifacts including an arrowpoint (Plate XI: 3) were found on the east shore of Lake Dumoine. The site is on a sandy point south of the mouth of the Moose River. On Grand Lake Victoria three sites were located in the narrows some 3 miles up from the Hudson's Bay post. Several broken artifacts and a number of chips were found on the surface of the sandy shore. Some 6 miles above the post, on both sides of a sandy point, there were found numerous chips and several artifacts, including two arrowpoints (Plate XI: 1, 2). Further along, near the head of the lake, on the east side, we discovered two places where chips were strewn about on the surface.

On a sandy point formed by the junction of the Harricanaw and Gale Rivers a number of green flint chips were found. Down river, opposite the junction of the Turgeon, on a bank 8 to 10 feet high, several chips and an arrowhead were discovered (Pl. XI: 4).

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Lincoln, Vermont
Methuen, Mass.
May, 1948

THE ROGERS' COLLECTION FROM LAKES MISTASSINI AND ALBANEL, PROVINCE OF QUEBEC

FREDERICK JOHNSON

EDWARD and Murray Rogers have generously presented to the Peabody Foundation, Andover, the collection of stone tools obtained during the trips described in the preceding paper. It is my privilege to offer a description of these fascinating specimens together with some comments. In doing this I do not wish to divert attention from the task the Rogers' accomplished. The material and the accompanying information which they brought back is, and will remain, of considerable importance to the archaeology of the "Far Northeast."

Few of us have the slightest conception of what the two men went through in order to make these data available to us. The region is difficult to travel in; even the Indians do not move around during the summer any more than they have to. In addition to the difficulties of travel, the Rogers' carried on their backs, aside from their gear, the 400-odd stone implements, weighing something like 100 pounds, over innumerable portages, most of which, when they did not have to be cut through the bush, were muddy and often made dangerous by snags which would cripple the unwary. The Rogers' kept an excellent record of what they saw and did. This includes information of interest to anthropologists, together with the location of portages and other features of the country which are not available on present maps. Perforce the following notes must ignore all the latter. It is to be hoped that this description will render the collection useful to students and others. Comments which attempt to explain the significance of the collection are my responsibility. Such cannot be complete for the material stands as a unit surrounded by a tierra incognita 500 or even 1000 miles wide. As the value of the collection increases, the credit for bringing it to light must be given to Edward and Murray Rogers.

Excepting a few small implements some of which, pretty much by courtesy, have been called arrowpoints, the 400-odd tools and fragments in this collection are of a character which has received but summary attention from American archaeologists. The artifacts give the general impression that the industry which produced them is analogous to that prevalent during the Middle Paleolithic in Europe. This by no means has any temporal implications. There are exceptions which belie this impression, of course. For example, of the Levallois-like flakes in the collection, some have been modified in a manner which, if the results of cursory examination of tools from the Old World are correct, never was accomplished by the ancient Levalloisians or their ilk. Like comments could be made concerning hand axes and large core scrapers similar to Acheulean tools. Some are indistinguishable from European varieties; others have a typical modification. Other kinds of tools similar to a number of types well established in Europe could be identified.

The modifications are the result of the application of pressure-flaking techniques which have been rarely noted on analogous European artifacts. In many instances a group of artifacts will be made by traditional techniques, ones which hark back to the Paleolithic. In other cases the same kind of tool will exhibit variations in the percussion or pressure flaking which a comparable tool in Europe never shows. One way to get around this in describing the tools is to place them in different classificatory or descriptive categories. The result is absurd. It produces, for example, a class of side scrapers made from thick flakes. Subdivisions would appear as the Acheulean type, Solutrean type, and several American types. Such a fine and arbitrary dividing serves no useful purpose; in fact it probably would be confusing.

A study of the variations in the whole collection and in specimens assigned to descriptive categories temporarily considered to be units, leads to the conclusion that eastern Canadian stone-working techniques were not used consistently in order to produce a class of tools. It is apparent that the Canadian Indians had at their command a wide knowledge of at least the cruder technical processes and they used them as conditions or fancy dictated. This variation in the industry itself serves to set it off not only from the Paleolithic industry but from all the Old World industries which we have

very briefly examined recently. We may add that this variation in technical ability, or at least the fortuitous application of several methods of chipping, is a common characteristic of North American stone work. Nowhere is this better illustrated than in eastern North America where eclecticism in all known stone work, except possibly subsequent to late protohistoric times, is the most prominent characteristic.

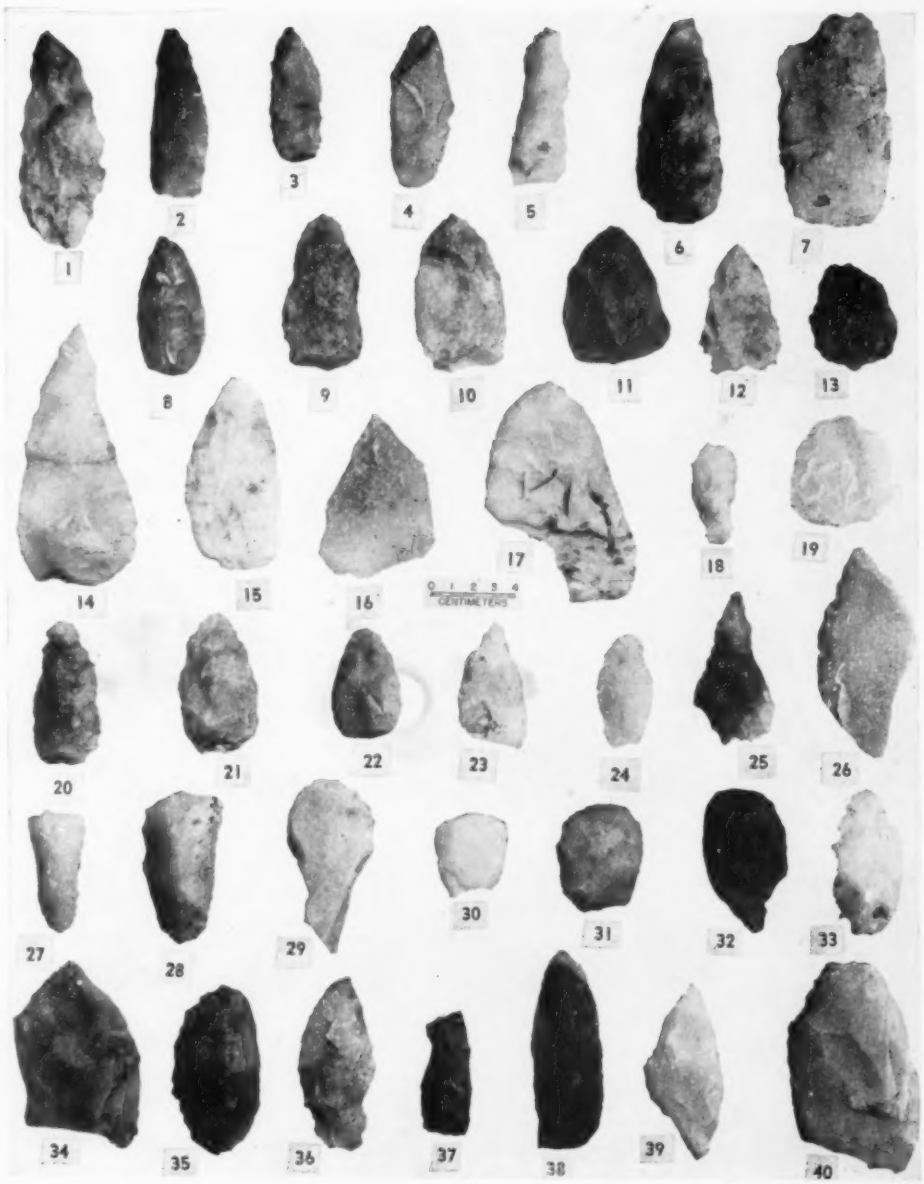
Another comment is worthy of more thought than has been given to it either here or elsewhere. It has been the custom to convert a tenuous inference into a dogma which states that American stone tools are derived from the Neolithic. Time and energy have been expended in the attempt to correlate types of American tools with types found in Siberia and even Europe. These efforts have led to arguments, based on typology, which tend to question or even deny stratigraphic and geographic factors, to say nothing of ignoring the more intangible factors which are responsible for the development of human culture. Analogous arguments have also been used in tracing inter-regional American distributions. It is probable that the shape of an implement, or any other general and complex criterion, may not be the only factor which has been subject to the vagaries of diffusion. It may be that technical habits were the factors which were diffused, not a specific concept of a finished artifact. These habits, appearing in accidental or even purposeful permutations and combinations, at any time-level, may account for the distribution of some of the types of stone tools which puzzle us.

So far as we know, specific industrial habits, parallel to those of Europe, have not yet been isolated in North America. However, it may be suggested that when stratigraphic analyses serve to postulate ages or trends of cultural development in a manner which does violence to present knowledge of diffusion, we may find that our concepts of diffusion are seriously incomplete or even unsound. The actual form of an implement or some similar characteristic may not be an important criterion to use in determining culture history. Rather, the diffusion of knowledge of specific methods of chipping may have been the important factor. As an example, tools made in central Siberia are said to appear first at a date later than that postulated for similar tools in America. The lack of data to prove this is no greater than the lack of proof that the stratigraphy in the Old and New Worlds is correct. It is possible that combinations of technical processes may have produced by accident or design a specific type of tool in America before they did in Siberia. In support of this, we may point out that Old World archaeological analysis is based upon an assumption that the ancients were conservative, at least in their stone industry. Conservatism in America appears to be of a somewhat different nature. In many places the form of a tool may change slowly over a period of time. However, the tool can be made in several different ways even during the life time of a single hearth. This feature of the American industry complicates the study of stone implements, especially in northeastern North America.

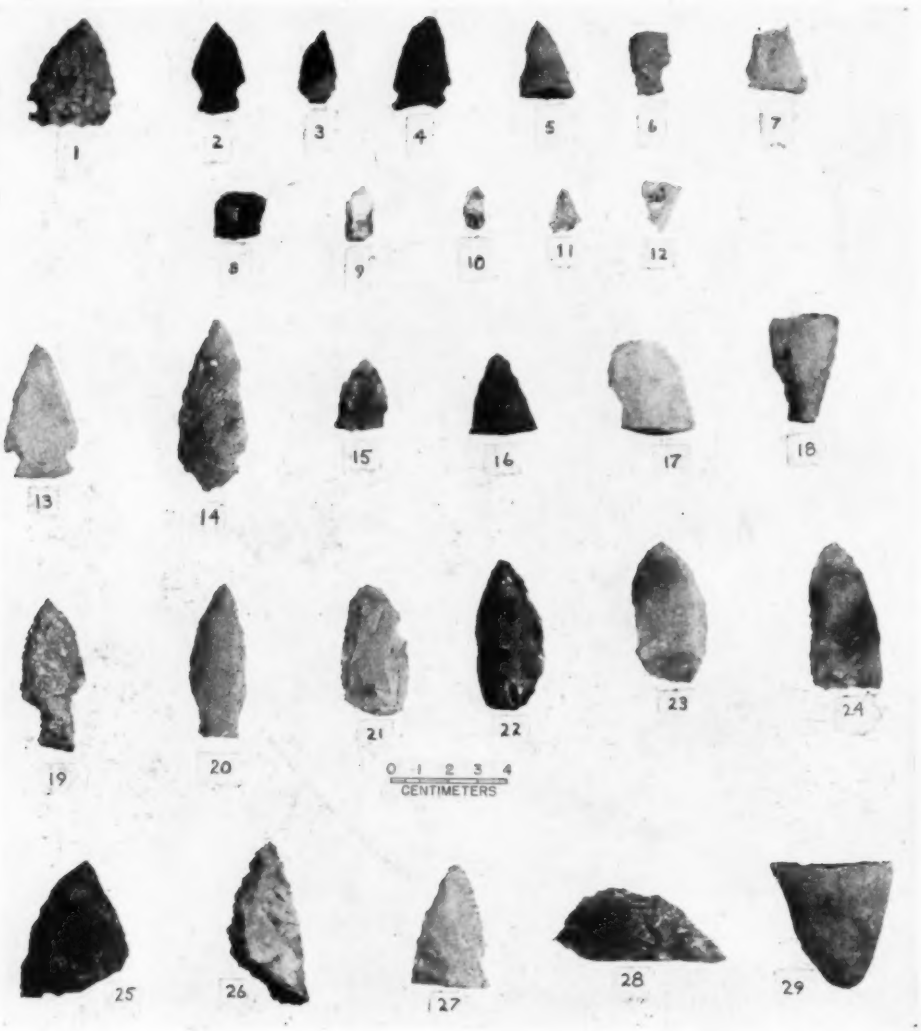
Most of the artifacts under consideration were made by percussion; even the smaller, better made tools were manufactured in this way. However, pressure flaking was used to trim or sharpen some edges and it is possible that some of the coarser chipping which smoothed the faces or made the implements thin was also a variety of the pressure technique. The manner in which percussion and pressure flaking were combined to produce an implement is quite unpredictable.

A large number of implements are made of large flakes. These are called blades because at this time inferences concerning function can be erroneous. The blades occur in a number of varieties. Those having one point are the most easily distinguished. One type is relatively narrow (Pl. IX: 1–6). The implements may be asymmetrical. The base may be either straight or excurvate; the widest part of the implement is near the base or less than one-third the distance to the point. All these implements are made of quartzite and are finished by crude retouching, which appears to be the result of percussion. It is possible that sections of some edges have been trimmed or sharpened by rough secondary pressure chipping. The edges tend to be sinuous but they are not consistently so and it cannot be inferred that an edge of this kind was purposely made. An irregular median ridge is common on one or both faces of the thicker specimens. This is much less pronounced, sometimes absent, on the thinner specimens.

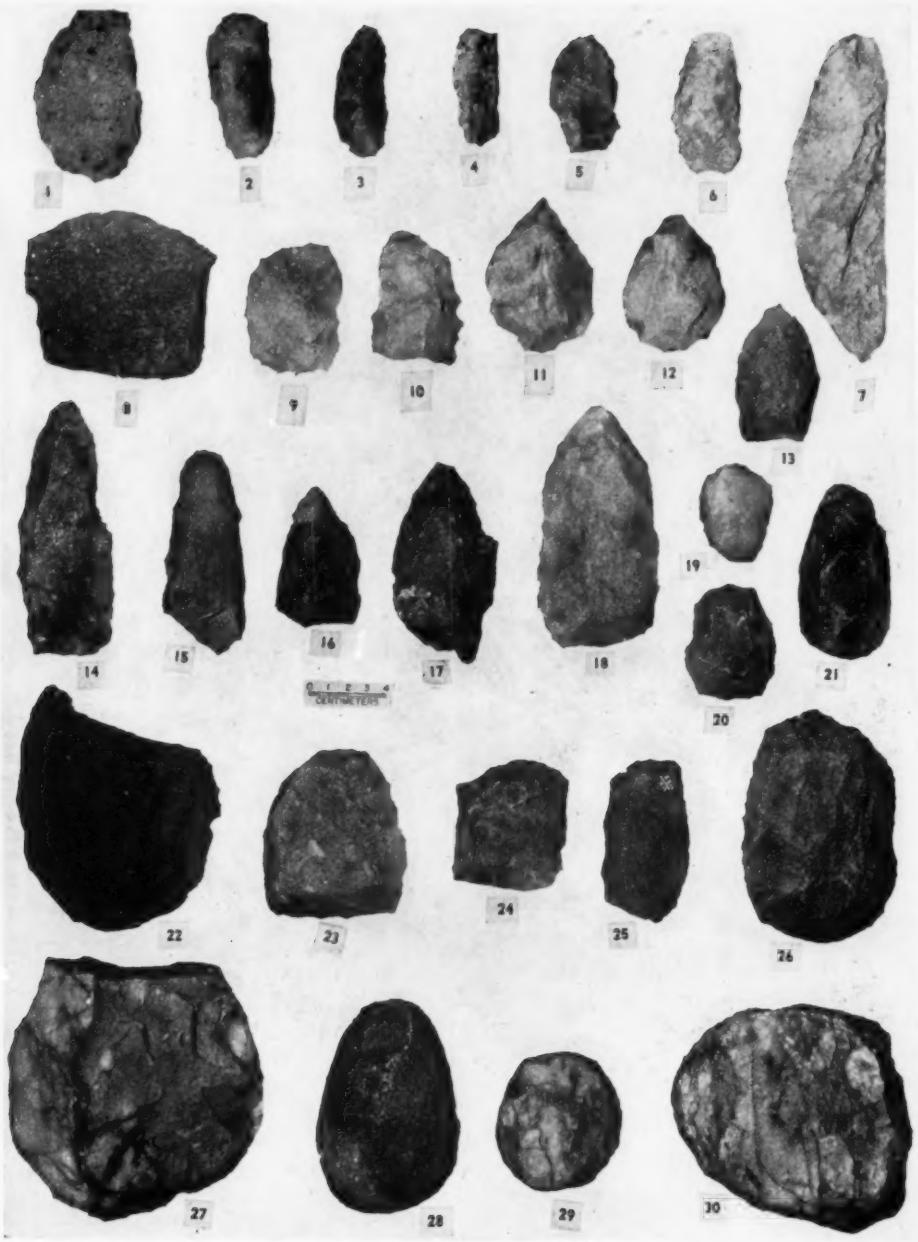
A second type of blade with one point is relatively short and broad (Pl. IX: 8–12, 14–17). One of these specimens, No. 8, is unusually well made, perhaps because it was made of



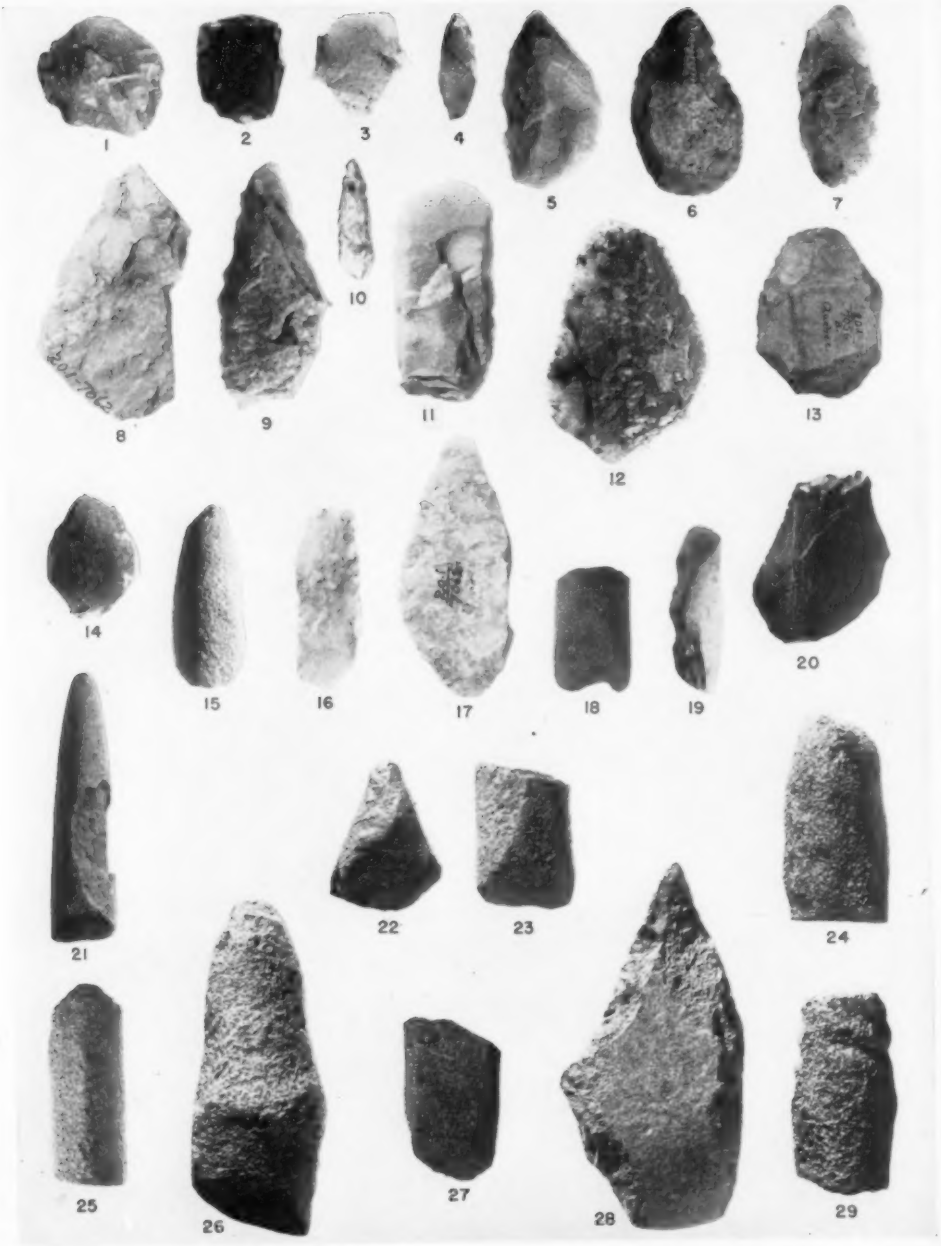
Blades, end scrapers, and flakes from sites on Lakes Mistassini and Albanel, Quebec.



Flake and core implements, side scrapers, hammerstones, and mauls from sites on Lakes Mistassini and Albanel, Quebec.



Arrowpoints, knives, and small stone tools from Lakes Mistassini, Albanel, and Dumoine; Grand Lake Victoria; and the Harricanaw River, Quebec.



Specimens from Tadoussac, Province of Quebec, collected by N. C. Nelson and F. G. Speck.
(Courtesy of the American Museum of Natural History.)

chalcedony. The others are made of quartzite. The latter exhibit the crude retouching noted above and even the former, No. 8, shows no fine work. Many of these broad specimens have a median ridge only on one face and some have been sharpened on but one side and the base. The bases of these implements, excepting possibly No. 8 which is otherwise unique, tend to be straight, and the widest part of the implement is close to or at the base. No. 17 is another implement which is unique in the whole collection. One corner has been broken. The specimen is thin and well made. In thinning the specimen, large flakes were removed, probably by percussion, around the edges. Scars of hinge fractures are common on both faces. The edge was sharpened by means of a coarse retouch; it tends to be sinuous.

Smaller blades with one point (Pl. IX: 20–25) are also common in the collection. Most of the chipping was probably done by percussion. The shape of these is not as consistent as that of the other two groups. It is probable that these were made quickly from flakes which were lying around. On some, the original surface of the chip is still visible. The specimen illustrated in Plate IX: 26, is the only one of this group which was made from a tabular fragment of quartzite. The original flat surfaces form both faces of the implement. Retouching of two edges was obviously done by percussion.

The blades of another group come in a wide variety of shapes. The four illustrated on Plate IX: 7, 13, 18, 19, hardly cover the range. These apparently were made from any suitable flake. They are crudely and coarsely chipped. The edges of No. 19 are dulled by hard use. It is possible that this specimen was used as a hammerstone for the purpose of lightly retouching edges.

An interesting series of blades are those which are retouched on one face only (Pl. IX: 33–40). That shown in Plate IX: 33 was retouched on the face which had been the interior of the original flake. All others in the collection were retouched on the exterior face of the flake.

End scrapers were not collected in large quantities. The twelve specimens obtained varied considerably in shape (Pl. IX: 27–32). All are made of a flake which is retouched only on one face. Plate IX: 32 is an exception to this statement; the flat face has been partially smoothed by coarse retouching. The specimens are longer than they are wide and one end has been dressed to a curved edge by means of a "vertical" retouch. The retouching extends along two sides of some specimens. The technique which produced the edge can be crude, possibly percussion, as in those shown in Plate IX: 27–29, or fine, presumably by pressure or use (Pl. IX: 30–32). In Plate IX, 29 and 30 are of note because they were made from tabular pieces of stone. The other specimens show a bulb of percussion or a curved face due to removal from a core. The original flake may have been thick, so that trimming and retouching produced a median ridge (Pl. IX: 27, 28, 32); or a thin flake was occasionally made into an end scraper (Pl. IX: 31).

Small flakes and larger cores which were generally longer than they were wide were made into implements by percussion retouching along one edge (Pl. X: 1–7). The retouching was done from both faces to produce a sinuous edge. This edge is to the left in the illustration. The specimens, of which there are nineteen in the collection, vary greatly in size. An attempt has been made to illustrate the range.

A type of implement which was made of short, rectanguloid cores is fairly common in the collection (Pl. X: 8–10). A tabular piece, perhaps somewhat anomalous, is shown in Plate X: 8. It has been retouched by percussion from both faces along one edge, the upper in the illustration. The two shown in 9 and 10 of the same plate have been chipped on both faces. There is no secondary retouching on any of these specimens.

Another type of core implement is short and broad and has one point (Pl. X: 11–13). The principal characteristic of this implement is its one flat face. For convenience these implements are termed core scrapers. The only retouching on the flat face was done by percussion and was obviously intended to produce a flat surface. The other face of the implement has, characteristically, a short median ridge formed by the removal of large chips from all edges. There is no secondary retouching. Some edges are dulled, perhaps by wear.

Core implements in the form of hand axes are common in the collection (Pl. X: 14–18). Fragments of them were counted as fragments of retouched blades, cf. Table 9. These are made of cores and are retouched by percussion. They have one point and the base is straight when retouched, or irregular or flat, often exhibiting a section of a striking platform, when it is not dressed.

A relatively few side scrapers made from thick flakes are found in the collection (Pl. X: 19–21). These vary greatly in size and somewhat in shape. They have one flat face, usually exhibiting a section of the bulb of percussion. The other face has been trimmed by percussion and usable edges have been roughly retouched. On some specimens there is evidence of finer chipping, due either to use or pressure chipping, perhaps a combination of both.

Disk-shaped core implements, retouched on both edges, and only occasionally exhibiting a crude secondary retouch, were not numerous (Pl. X: 22 [broken], 23, 26).

Hammerstones (Pl. X: 24, 25, 28, 29) are said to be common on most sites. Mauls (Pl. X: 27, 30) were lying about the "Quarry Site," but few of these were brought out because of their weight. Hammerstones were usually made of beach pebbles. An interesting exception is shown in Plate X: 24, which is a rectanguloid chip of quartzite, one edge of which was used, possibly to retouch edges. The two mauls are battered boulders of quartzite.

Plate XI illustrates arrowpoints and other small stone tools found both in the Mistassini-Albanel region and in the area to the west along the Harricanaw River and on Grand Lake Victoria and Lake Dumoine. The interesting thing about these arrowpoints is their scarcity. It is possible, of course, that others were not found because of the extremely difficult, if not nearly impossible conditions under which the Rogers' had to work. On the other hand, there is a possibility that the aborigines did not make as many of these smaller tools as we assume that they should have done.

Plate XI: 13 is an unusual variety of a side-notched trianguloid arrowpoint. The specimen is made from a chip about 1/8 inch thick. It was formed by retouching both faces around the edges. The chipping extends onto the faces for about 1/8 inch. The notches have been chipped into the side and in the process a bit of the corner has been removed. Plate XI: 14 is a side-notched arrowpoint, lanceolate in shape. Very small, shallow notches have been chipped into the side at the point where the curved base joins the side. Both faces of the arrowpoint have been trimmed by chipping. What secondary chipping can be identified exhibits scars of hinge fractures. Plate XI: 15, excavated from Site 6, is a small trianguloid, side-notched arrowpoint. The notches are very small and shallow. This was made from a small flake and trimmed to shape, probably by pressure flaking. The original surface of the flake is visible on both faces.

Plate XI: 19 is trianguloid and long stemmed. It is one of a few artifacts made of quartz. It has been chipped on both faces and has the lumpy surface and angular scars characteristic of this material. Plate XI: 20 is a lanceolate, stemmed arrowpoint. The junction between the stem and body of the point is curved rather than angular. The arrowpoint is curved laterally, following the outline of the original chip. It has been retouched on both faces and the edges exhibit a relatively fine secondary retouch.

Plate XI: 21–24 may be knives rather than arrowpoints. They are small, thin flakes which have been trimmed to shape by a combination of percussion and pressure flaking. Nos. 23 and 24 do not show evidence of secondary retouching.

Other specimens in Plate XI are included largely as a record of excavated artifacts. Plate XI: 6 may be a fragment of a crude stemmed arrowpoint, while 5, 7, 12, 16, and 18 of the same plate are fragments of unidentifiable types of arrowpoints. Plate XI: 25–29, are fragments of blades. Plate XI: 29 is of some interest for it is the only implement of this general type which exhibits a fine retouch, such as could only be done by pressure. One face shows the original interior surface of the chip from which the tool was made. Only portions of the edge have been retouched on this face. A fragment of an unidentifiable tool is illustrated in Plate XI: 17.

Plate XI: 9–11 are quartz crystals which, because they were excavated from established levels, are assumed to have been used, or at least collected, by the aborigines. These specimens show no signs of wear.

Plate XI: 8 is the small gun flint which was excavated from Site 6. One corner has been damaged. The dark color, translucency, and texture of the flint is similar to some European varieties but we cannot be certain of this identification. The gun flint is unusually small, approaching the size used in some pistols.

The remaining implements to be described are from the western region described in the Rogers' paper. Plate XI: 1, 2, 4 are varieties of trianguloid, side-notched arrowpoints. Two of these, 2 and 4, are made of flakes which have been trimmed to shape by retouching; the surfaces of the original flake have been left on both

faces of the two implements. The third point, 1, has been chipped all over. Plate XI: 3 is a fragment of an arrowpoint made of a flake in a manner similar to that illustrated in Plate XI: 2 and 4.

The information concerning the provenience of the artifacts from the Mistassini region does not permit hypotheses concerning the time when they were made (Table 9). The discovery of a gun flint, probably associated with the artifacts in crevices in a ledge at Site 6, suggests a post-Columbian date. On the other hand, repeated discoveries of artifacts which were eroded by the action of water and sand is suggestive of some antiquity. This latter possibility is further substantiated, though in an indefinite manner, by the erosion of the banks of the sites. The facts that not a few artifacts were found beneath the water at many locations and that several sites appear to have been almost completely eroded away are some indication of the passage of time. At the moment we may only guess, but it is possible that some of the material may be of respectable antiquity and that the whole collection may represent a period of some length, ending perhaps in early historic times.

There are several objections to this guess. One may be based on typological grounds. Artifacts were found on 34 sites and there were enough from a good many of these sites to justify an assumption that the general character of the stone industry is known (Table 9). One of the features of the collection is the fact that the artifacts do not vary significantly from site to site. Therefore if we assume that the distribution and provenience indicates passage of an appreciable length of time we must also assume a considerable degree of conservatism on the part of the aboriginal artisans. In many parts of the continent this would be unthinkable, even in the face of our incomplete knowledge of American stone industries. However, in sections of the Northeast, the lack of change, or at least slow and moderate development, in the products of the stone industry over a period of time is a prominent characteristic. This condition becomes increasingly more apparent as one approaches the margins, excluding, perhaps, the Eskimo. In spite of objections which are largely based on theoretical or inferential grounds, it is not possible to assume, even for the joy of arguing, that the typology of these artifacts has chronological implications. In the Northeast, crudeness is an extremely untrustworthy criterion unless, as may be possible with materials such as are in this collection, such a characteristic can be ascribed to certain identifiable cultural habits. Until we know more concerning the vertical and horizontal distribution of these artifacts, the question of the age and possibly even cultural relationship must be left open.

The sites which bear the closest resemblance to those found by the Rogers' are located at Tadoussac at the mouth of the Saguenay River.[1] The chipped stone industry found here is quite similar in many respects. A possible exception is that the Tadoussac specimens exhibit in general much more pressure retouching than do those collected by the Rogers'. Implements we have called blades are common to both sites but the shapes differ to some extent. In particular, many Tadoussac blades have a pointed base not found in the Rogers' collection. End scrapers are not reported from Tadoussac, but some core scrapers are present there. The various core implements, except hand axes which are absent at Tadoussac, have much in common, as do flakes and cores retouched on one edge. No disk-shaped cores were noted on the coast.

Possibly significant differences may be noted in the arrowpoints and smaller chipped tools. In the Peabody Foundation collection there are a number of so-called spear points; these are stemmed and side-notched forms. They have not been illustrated in descriptions of the Tadoussac artifacts. In addition, a number of arrowpoints from Tadoussac, now in the Peabody Foundation, are of types which were not found in central western Quebec. An exception may be the stemmed arrowpoint illustrated by Wintemberg.[2] Specimens of the larger implements seen in the American Museum correspond in general to those described by Wintemberg and to those in the Peabody Foundation, except that many are made from tabular pieces of quartzite (Pl. XII). This perhaps is due to the local supply of the material. Such specimens are not common in the collection under consideration.

The greatest and probably most significant difference between the Rogers' and Tadoussac

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[1] Wintemberg, 1942; Speck, 1916; collections in the Peabody Foundation; notes by the author on collections in the American Museum of Natural History and in the National Museum of Canada.

[2] Wintemberg, 1942, Plate XXV, B:1.

TABLE 9. DISTRIBUTION OF ARTIFACTS IN THE MISTASSINI AND ALBANEL SITES

	Site 12	Site 4	Site 5	Site 6	Site 7	Site 8	Between 8 and 9	Site 9	Site 10	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H
Blades																	
With one point, narrow	15				3	3		1	4					2	1	4	12
With one point, broad	19				1				1								
With one point, small	7	1	2		1	3	1				1				1		11
Retouched on one face	20	1			1				3							2	1
Miscellaneous shapes	6								2								1
Fragments unclassifiable	73			2					2	1	1	3	2			1	6
End scrapers	5											1					
Flakes and cores retouched on one edge	10					1			1					1			1
Rectanguloid cores	12																3
Core scrapers	3																
Hand axes	19								2								
Side scrapers	5								1								
Disk-shaped core implements	5																1
Hammerstones	6				1									1			1
Arrowpoints	2			2	2		1	4	1			1					
Quartz crystals				2	1												
Gun flint				1													
Mauls																	

collections is the absence from the former of any tool which shows even the rudiments of polishing. There are a striking number and variety of types of polished adzes and celts and also slate tools from Tadoussac. The lack of these in central western Quebec may be due to the accidents of reconnaissance collecting. However, if such tools were present in any significant numbers one would expect that a few would appear in a collection of 400 implements, selected from a still larger collection from which many pieces were culled because of their weight. It seems necessary to assume for the present that polished tools were not used by the people who inhabited the sites now known on Lake Mistassini and Albanel.

The presence of these polished tools at Tadoussac may be due to a different condition. These sites—it is certain that there were more than one—were found in areas on four terraces, the surfaces of which had been greatly disturbed by wind action. It is likely, furthermore, that Tadoussac had been inhabited over a considerable period by peoples having different cultural traditions. The polished stone tools may represent an addition at some time to the stone industry on the coast. Such may not have extended into the interior. Until detailed work has been accomplished in both the interior and coastal regions this guess cannot be substantiated.

Comparison between the Rogers' collection and that obtained by Strong from eastern Labrador[3] brings to light an unexpected lack of resemblance. The Labrador specimens all exhibit a pressure retouch, some of it rather expertly done. The artifacts are relatively small in size and made of flakes. The crudest of the larger blades are only vaguely similar to the best from central western Quebec.

Interesting comparisons can be drawn between the artifacts from Quebec and those described by Greenman[4] from sites located on ancient beaches north of Manitoulin Island, Province of Ontario. Unfortunately it has not been possible to inspect the specimens from Ontario. Comparisons of illustrations leads to the suggestion that, excepting the arrowpoints, the artifacts from Ontario are similar to those

[3] Strong, 1930; collections in the Peabody Foundation.

[4] Greenman and Stanley, 1940, 1943; Greenman, 1942.

TABLE 9. DISTRIBUTION OF ARTIFACTS IN THE MISTASSINI AND ALBANEL SITES (*Continued*)

	Site I	Site J	Site K	Site L	Between L and M	Site M	Site O	Site P	Site 11	Site 13	Site 14	Site 15	Between 15 and 16	Site 16	Site 17	Hilltop	Quarry
Blades																	
With one point, narrow	1			1	1	11			6	3					2	2	
With one point, broad	2	1			1			1		1	4					3	
With one point, small		1	1							2	2	2					
Retouched on one face	3			1	1					1		2					
Miscellaneous shapes						2								1	1		
Fragments unclassifiable						3					3	2	1	2			
End scrapers	1					1	1		1						2		
Flakes and cores retouched on one edge					1	3				1							
Rectanguloid cores		1	1			1							1				
Core scrapers																	
Hand axes										2							
Side scrapers					1												
Disk-shaped core implements																	
Hammerstones																	
Arrowpoints		1	1	1		2			1			1					
Quartz crystals																	
Gun flint																	
Mauls																	2

from Quebec. The eastern specimens do not include what Greenman has called perforators.[5] The eastern industry does produce end scrapers which, we gather, were not present on the earlier sites at Killarney.

A long series of additional comparisons seems unjustifiable in the light of present knowledge concerning this material. It may be pointed out, perhaps unnecessarily, that the majority but by no means all of the types of tools will be found on some sites widely distributed over North and perhaps even South America. The few instances which have come immediately to hand appear to be specialized ones. Collections which produce such implements are usually closely connected with quarries of one sort or another. This is true of the Quebec sites which have been described. However, an important and perhaps eventually significant observation may be made. Some tools in the Rogers' collection, such as core scrapers, certain blades, flakes and cores retouched on one edge and possibly others, are rare and frequently absent from quarry workshop collections. This and preceding remarks suggest to us the possibility of the existence in central Ontario and Quebec, during an unknown period, perhaps of some length, of a group of aborigines who carried on a stone industry which was basically Paleolithic in type. This industry is not "pure," at least in terms of European typology.

Out of loyalty to the region in which these artifacts were found an attempt should be made to fit them into the established culture classification. However, this makes no sense to us and we refrain from it. Tadoussac is presumed to be a Laurentian site. Obviously it is composed of several sites and, regardless of the present collection, a classification of all the material into a single category is not justifiable. Present evidence suggests one possibility. This coarse, heavy chipped material may indicate one stage of development in local culture and the polished material may be the sign of another phase, one which possibly overlaps. The correspondence between many of the Tadoussac specimens and some of the specimens in the Rogers' collection is not sufficient to permit the postulation of more than a very broad relationship. Types of arrowpoints and some blade

[5] Greenman, 1942, Pl. XVII, *b*, *c*, *d*.

and core implements, for example, are quite different. Theoretically we should classify this material as Laurentian because the term has been applied to the Tadoussac artifacts and there is a broad resemblance between some types of tools. However, we doubt the validity of the classification of the Tadoussac material. It is impossible for us to apply to the Rogers' collection any of the terms which are being bandied about in the Northeast. The place the Rogers' collection occupies in the culture history of the region is as yet quite unknown.

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Robert S. Peabody Foundation
Andover, Massachusetts
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PASSADUMKEAG, A RED PAINT CEMETERY, THIRTY-FIVE YEARS AFTER MOOREHEAD

WENDELL S. HADLOCK AND THEODORE STERN

PRESENT-day knowledge of the Red Paint burial complex in Maine rests chiefly upon the work of Willoughby and of Moorehead, done in the latter part of the last, and the first quarter of the present, century. Without doubt, the most extensive report on the subject is Moorehead's *Archaeology of Maine*, in which summary accounts of excavations at twelve Red Paint sites were set forth. Unfortunately, certain details pertaining to the burials were obscure. In particular, more data were desirable upon the character of the deposit—whether burial or ceremonial offering—as well as upon the indications of age. With the purpose of securing this information, the authors in June, 1947, undertook limited excavations on the Hathaway farm at Passadumkeag, Maine.[1] Here Moorehead had excavated seventeen graves;[2] without exhausting the possibilities, we were able to uncover seven more.

The town of Passadumkeag is situated some 30 miles above Bangor, on the east bank of the Penobscot River, at its junction with the Passadumkeag, the lower course of which lies principally in marshland broken only occasionally by higher features. One of these, the Enfield Horseback, an esker, lies about 2 miles from the town, and here, on the north bank of the river, the Hathaway farm is located.

Moorehead's excavations were carried on some 30 meters south of the farmhouse, which is located on the slope of the esker.[3] With the kind permission of Mr. S. H. Hathaway, we undertook tests between the area excavated by Moorehead and the house; these resulted in the discovery of Burial 1. Thereupon, a 3-foot grid system was set up, oriented toward magnetic north. Base stake, A1, was located at an

[1] Work was carried on under the joint auspices of the Robert S. Peabody Foundation, Phillips Academy, Andover, Massachusetts, and the Robert Abbe Museum, Bar Harbor, Maine. Mr. Douglas Byers, of the Robert S. Peabody Foundation, was present and assisted during the greater part of the excavation. Mr. Robert Merrill, graduate student in the Department of Anthropology, Harvard University, also participated.

[2] Moorehead, 1922, p. 50.

[3] *Ibid.*, p. 50. Figure 30, of the same work, is a view of the site facing west. Moorehead's excavations were undertaken on the steep slope toward the left, shown in profile.

azimuth of 207° from the southwest corner of the ell of the house, at a distance of 62′ 10″. A total of 33 three-foot squares were explored; in addition, a trench was directed approximately 16 feet toward the south to intercept the area of Moorehead's digging.

The seven burials which form the subject of this report ranged in a line running approximately northeast and southwest; they were adjacent and in some cases actually overlapped, although not on the same plane (Fig. 15). It is possible that the linear arrangement was dictated by some natural feature since obscured. Because of the limited nature of the excavations, too much stress should not be placed upon the relative position of the graves. Moorehead's excavations at the same site reveal no such arrangement [4]

The soil in which the burials lie comprises three elements: (1) a mantle of humus, ranging in thickness from 6 to 12 inches, which has undergone interrupted cultivation over a period of about a century; (2) a layer of mixed yellow pin gravel and clay, doubtless a component of the esker itself, of very irregular depth; and (3) an underlying stratum of buff-colored pin gravel and sand, which extends at least to the lowest limits excavated.

An analysis of the soils taken from the graves produced the results shown in Table 10.[5]

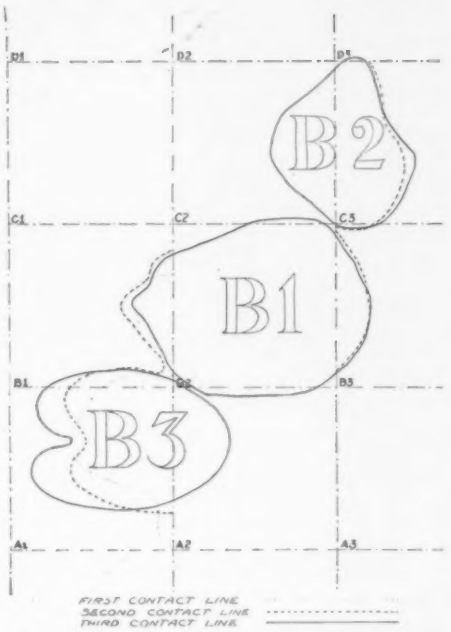


FIG. 15. Burials 1, 2, and 3 in the Hathaway cemetery, Passadumkeag, Maine with grid superimposed. The contact lines indicated outline the extent of red ocher at the zones of contact between humus and yellow pin gravel, between yellow pin gravel and the buff component, and at its greatest extent.

The burials were shallow. Several of them were discernible in the lower portion of the humus, and all extended only into the surface of the buff stratum (Fig. 16). Consequently, plowing had disturbed the upper ranges of some of the burials, resulting in the transposition of artifacts within the humus layer. Since, according to Mr. Hathaway, the contour of the ground

[4] *Ibid.*, Plan VI.

[5] Dr. Paul N. Carpenter, Assistant Agronomist, Maine Agricultural Experiment Station, Orono, Maine writes that:

"The analysis of the yellow and buff pin gravels are about normal in all respects to what should be expected for soils in this area.

"The analysis of the ocher may be a different story, however. Professor Trefethen has given me the normal analysis for the Parent Material of Ocher as being about .004% *total* phosphorus. He states that he would expect that the phosphorus content should change but very little upon weathering. Our analysis of the ocher for *soluble* phosphorus was .057%."

The analysis of the soil and red ocher samples were made by Dr. Carpenter and Dr. Joseph Trefethen, State Geologist, Orono, Maine, to whom we are greatly indebted for this service.

TABLE 10. SOIL TEST RESULTS, PASSADUMKEAG GRAVES

Laboratory Number	Sample Number*	pH	% Phosphorous	% Potassium	% Calcium	% Magnesium	% Manganese	% Iron	% Aluminum
35213	1	5.5	.014	.005	.075	.002	.0005	.002	.010
35214	2	5.7	.005	.005	.050	.002	.0005	.002	.005
35215	3	5.3	.057	.005	.075	.002	.0005	.002	.005

* Sample No. 1, yellow pin gravel; sample No. 2, buff pin gravel; sample No. 3, red ocher.

permitted plowing only from north to south, it has been possible in most instances to assign the artifacts to the graves from which they probably came.

It was the discovery of artifacts brought to light in this manner which first led Moorehead to the Hathaway farm. His excavations were undertaken, according to Mr. Hathaway, in an area in which plowing had uncovered similar objects. The photographs which illustrate his report, together with his general remarks, reveal that his burials were of a shallowness comparable to that which we observed.[6]

In the relatively deeper graves—Burials 1 to 4—the upper surfaces of which did not meet the humus layer, there was apparent in each case a short burial shaft. This consisted of a roughly conical aperture, with truncate apex resting upon the center of the grave, the shaft being filled with humus intermixed with yellow pin gravel and clay. The entire grave might be likened to an inverted mushroom, the red ocher deposit extending beyond the walls of the shaft. The limits of the red ocher do not appear to have been materially affected by leaching, since they are well defined (Pl. XIII). On the other hand, shafts were not observed in the comparatively shallow graves, 5–7; here plowing may have destroyed that feature, since the humus layer rested directly upon the greater part of the red ocher surface.

A second distinctive structure was exhibited by Burial 4, in which unmodified stones had been placed to form a rude, but recognizable, lining of the grave. In the casing, stones ranging in size from a length of 2 to 18 inches were employed. The wall thus formed encompassed all but the southwest segment of the burial, and averaged 8 inches in height.

In addition to the red ocher which characterized all burials and defined their approximate limits, each grave contained artifacts. There is one possible exception, a small, irregular patch of red ocher which appeared to have been disturbed by the plow, and even here an adze, otherwise unassociated, lay above it in the humus. This feature is not included in the burials described below.

The contents of the graves were as follows:

Burial 1: 4 gouges, 2 adzes, 4 plummets (one from the humus), 1 irregular slate blade, 3 broken abrading stones, 1 limonite nodule, and 1 elongate tabular stone object.

Burial 2: 2 adzes, one bearing evidence of contact with pyrites.

Burial 3: 1 plummet, 2 flaked points, 2 oval stones, 2 abrading stones, and 1 limonite nodule.

Burial 4: 1 adze, 1 flaked point, and 1 abrading stone.

Burial 5: 1 fragment of an elongate tabular stone object.

Burial 6: 1 gouge and 1 flaked point.

Burial 7: 1 gouge, 1 adze, and 1 hammerstone.

Lithic deterioration is distinguishable in only two artifacts, an adze from Burial 2 and a gouge from Burial 7. Both are made of schist,

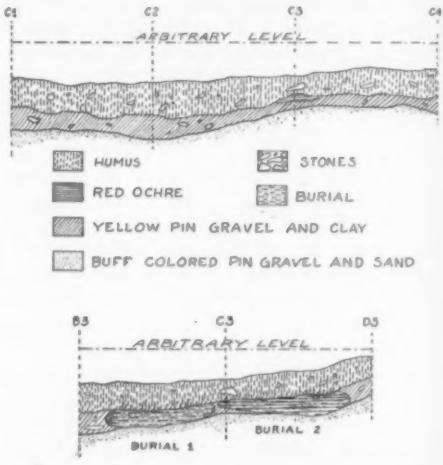


FIG. 16. Cross sections, C1–C4 and B3–D3, in the Hathaway cemetery, Passadumkeag, Maine.

and both appear to have been in contact with iron pyrites (see Pl. XIV, B, *a*, *b*). On the other hand, objects made of felsite, silt stone, and diorite, which likewise were lying against iron pyrites, exhibit no such decomposition. The variability in the degree of weathering exhibited by these implements thus seems clearly to be a function of material, rather than of age.

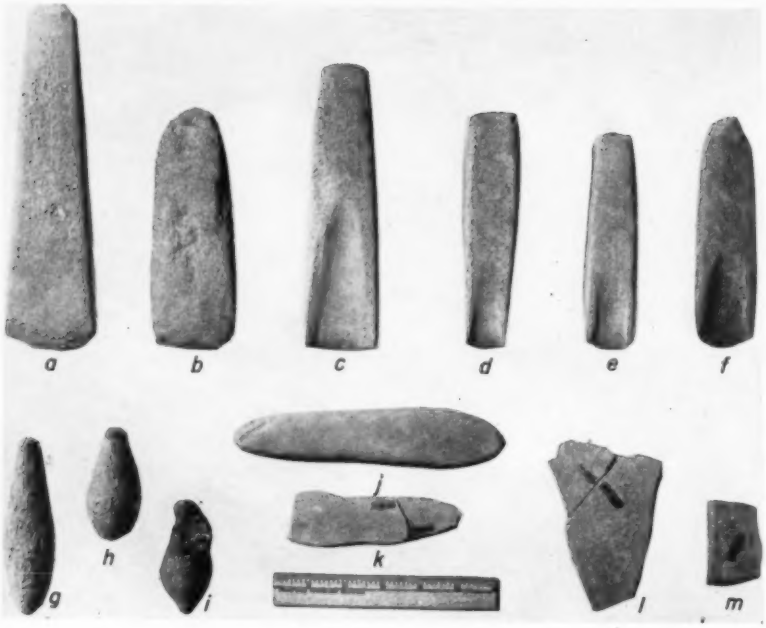
Much has been said relative to the wear to which implements from Red Paint graves have been subjected, although it is evident that signs of use will not be as readily apparent in some types of artifacts as in others. Among the implements discussed in this report, gouges and adzes might be expected most clearly to show wear. Actually the greater part of them exhibit a sharp, symmetrical edge with no indications either of use or of resharpening. Therein they suggest that some types of implements were placed in the graves unused. On

[6] Moorehead, 1922, Figs. 31–34, 36. Cf. field note on Burial 143, p. 67, and general remarks, p. 53.

A

B

The Hathaway cemetery, Passadumkeag, Maine. A, Burial 3. B, Burial 2. The strings outline the extent of red ocher.



A

B

Artifacts from the Hathaway cemetery, Passadumkeag, Maine (See facing page for identifications.)

the other hand, accompanying them were abrading stones and hammerstones exhibiting moderate to advanced wear. It may be significant that these are primary tools with respect to many of the other implements found in the graves.

The artifacts may be summarized by type as follows. The method by which gouges, adzes, and celts were manufactured seems to have comprised an initial bold flaking to achieve the general form, followed by an over-all pecking to perfect the shape, and finally a delicate grinding reserved to the bit. The finish of the cutting edge is of a high quality, producing a well-proportioned bit with few traces of grinding striae.

The gouges range in length from 4½ to 7¼ inches, with a mean of about 6 inches (Pl. XIV, A, *c–f*; B, *b*). In general, the groove extends about one-third of the length in from the bit, becoming gradually shallower until it meets the surface. Its cross section at the edge reveals in many instances a flat-bottomed trough with somewhat rounded corners. No examples of double-bitted gouges were found.

Adzes exhibit a somewhat greater range of variation in feature than do the gouges (Pl. XIV, A, *a*, *b*; B, *a*, *c*, *d*). Over-all lengths run from 5¼ to 10 inches, without a tendency to cluster about a mean value. Grinding does not extend beyond about 1 to 1½ inches in from the edge. The finish differs in these implements; some show no pecking, but only the initial flaking and the final grinding. In proportion they range from artifacts well within the class of adzes to one that might validly be termed a thin celt.

Plummets, on the other hand, are well-finished objects, pecked into symmetrical shapes that seem, like the gouges, to adhere to standard patterns (Pl. XIV, A, *g–i*). A tear-drop form, with a well-developed terminal knob is most common. In one, or possibly two, out of a total of six examples, the groove below the knob has been developed by grinding. Lengths range from 3 to 4 inches.

Three spheroidal stones were found which exhibit uniform pecking over the surface. All are approximately 1¾ inches in diameter. At present, we cannot postulate the use to which they were put; but they do not belong in the category of the so-called "lucky stones" mentioned by Moorehead. With reference to the latter, it might be remarked that many pebbles in and about the red ocher answer the description of lucky stones but are indistinguishable from components of the surrounding pin gravel.

Of a total of five flaked points, four were specifically associated with burials (Pl. XIV, B, *e*, *f*, *h*, *i*). All are long stemmed triangles. Three are large and relatively broad (*ca.* 3½ by 1¼ inches), while the remaining two, including one unassociated point, are smaller and proportionately narrower (*ca.* 2½ by ¾ inches). The stems of the larger blades are strikingly long and broad. All the points exhibit the shallow, broad flaking found in similar implements from graves of the Red Paint burial complex. So close a resemblance is evidenced within the two classes of points that it is apparent that they adhere to standardized patterns. In addition, an object which appears to be a fragment of a drill was found unassociated in the disturbed zone of humus. Its assignment to the burials is at present impossible.

A rough, asymmetrical slate object, flaked along one edge from one surface only, was found broken in Burial 1 (Pl. XIV, A, *k*). It is 4¾ inches in length and 1 1/16 inches wide. The unflaked surface is uniformly ground. No other ground slate objects were found.

Two examples of elongate tabular stone objects appear most closely to resemble the objects from the same site excavated by Moorehead,[7] although they lack the perforation (Pl. XIV, A, *j*). One is fragmentary; the dimensions of the other are 7¼ inches by 1 5/16 inches. On the latter, grinding appears on both plane surfaces as well as the edge.

Abrading stones were common (Pl. XIV, A, *l*, *m*). In two instances they were broken, either in the course of burial or subsequently, since the fragments lay together in the grave. The majority of them are of slate; several exhibit ground edges as well as the shallow facets on the plane surface. One rough, irregular sandstone object, from Burial 3, cannot be

[7] *Ibid.*, Fig. 35.

EXPLANATION OF PLATE XIV. A, stone artifacts from Burial 1. B, stone artifacts selected from various burials: *a*, adze showing deterioration; *b*, gouge, also showing deterioration; *c*, *d*, adzes; *e*, *f*, flaked points of quartzite; *g*, a felsite point showing indications of weathering; *h–j*, flaked points of felsite; *k*, a chip or flake of rhyolite.

assigned to this class, since it shows no signs at all of having been used.

One small, much-used hammerstone was taken from Burial 7. Its average diameter slightly exceeds 2 inches.

A fragmentary nodule of limonite was found in Burial 1, and it is probable that this substance was also present in other graves, since limonite was found adhering to several implements. It is probable that the limonite represents the remains of strike-a-light stones of iron pyrites.

The expert workmanship and recurrence of the same pattern within several types of implements suggests a specialization of manufacture. However, until comparisons can be made with the objects from associated occupational sites, there is no basis for affirming that the grave goods represent either a superior workmanship or special classes of artifacts not to be found in the regular life of these peoples.

In the course of the Phillips Academy survey alone, Moorehead excavated more than 400 graves,[8] while the research herein described accounted for but 7—a disparate sample of which the authors are fully conscious. However, it is not our intention to generalize from so limited a base, but rather to examine some features within the Red Paint complex which have been the subject of discussion. It is our purpose to focus attention upon characteristics of the complex as it has been constituted, rather than to conjecture as to its external relationship. The investigation of a village site which can be identified with the Red Paint burial complex must be considered prerequisite for further determining its broader affinities.

The presence at Passadumkeag of burial shafts made it possible for the excavator to detect a grave both tactually and by sight. It should be pointed out that the shallowness of the graves, together with the presence of the humus, facilitated detection. The experience gained on the Hathaway site underscores the natural properties of gravel and sand which, quite apart from considerations of age, tend to make it difficult to recognize the limits even of relatively recent disturbances which are in homogeneous deposits and which do not pierce lenses of sand or gravel.

In depth, the Hathaway examples correspond with the shallow graves described by Moorehead and Willoughby. The recovery, in the course of plowing, of Red Paint artifacts and red ocher, in various gardens at Passadumkeag suggests that here at least shallow graves were general. It will be recalled that in other instances as well, cemeteries were first located through plowing.[9]

The area occupied by each of the graves shows clearly that they are large enough to hold a corpse in flexed or secondary interment; and some might even accommodate an extended burial. The absence of skeletal material from the deposits may be explicable in terms of the prevailingly acid soil environment, which extended to the red ocher as well.[10]

The crude stone lining, present in Burial 4, had its closest parallel with the large boulders and slabs reported for the Stevens cemetery at Warren and the Godfrey cemetery at Old Town. In the latter place, "Most of the graves seem to be surrounded by ten, twelve, or even fifteen large boulders which weigh from forty to one hundred pounds each."[11] No rocks of comparable size were incorporated in the low stone wall within Burial 4, yet it is clear that it represents a variant of the boulder lining.

Arguments for antiquity have rested in part upon the partial disintegration of stone artifacts found in the burials.[12] Our information from Passadumkeag suggests that such variables as the nature of the stone, its contact with iron pyrites, and drainage make it difficult to apply this condition as a criterion of age.

Prior to excavating the Hathaway site, the authors experimented with the establishment of a method for classifying Red Paint artifacts according to locality, using the representative collection in the Robert Abbe Museum for this purpose. These attempts did not lead to consistent results. It proved impractical with the samples at hand to set up regional groupings on the basis of resemblance of artifacts. The ma-

[8] *Ibid.*, p. 127.

[9] *Ibid.*; Emerson, p. 34; Wentworth, p. 101.

[10] That these conditions prevail generally at the Hathaway farm is suggested by a qualitative analysis conducted by Mr. A. E. Parkinson, chemist of the University Museum, upon a sample of red ocher from this site deposited by Moorehead in the Department of Anthropology, University of Pennsylvania. The results of his tests correspond closely with the findings upon the recent samples made by the University of Maine. We are grateful to Mr. Parkinson, and to the University Museum, for this analysis.

[11] *Ibid.*, p. 90; Fig. 44, p. 93.

[12] Moorehead, 1913, p. 40; cf. Moorehead, 1922, p. 133; Smith, 1930, p. 43.

terial from Passadumkeag subsequently recovered also cut across the tentative classification, its closest resemblance, contrary to expectations, lying with the Orland and Warren cemeteries.

In the light of evidence from the Hathaway site, we have found grounds for criticizing adversely some of the criteria—disappearance of grave outlines, absence of skeletal remains, and deterioration of stone artifacts—hitherto utilized in judging the antiquity of Red Paint burials. In so doing, we merely assert that the criteria selected are subject to too many variables to be valid. We do not wish to imply that the burials may not possess respectable antiquity, but likewise we must state that in our opinion there is no internal evidence that would deny them relative recency.

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TRIPOD POTTERY IN THE CENTRAL ANDEAN AREA

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WITHIN the past twenty-five years excavations and comparative research projects have revealed much concerning Central Andean prehistory. The result of this period of intensive research has been to bring about a systematic treatment of the geographical and chronological phases of the area. With such a large amount of data available it now becomes possible to follow certain detailed aspects of Central Andean prehistory in their development from one time period to another, and to designate their spatial position. The tripod pottery form offers such an opportunity, not only for the Central Andean area itself but also for immediately adjacent areas.

The tripod is a rare form in Peru and Bolivia and for this reason adapts itself to comparative study. It has been of great interest to archaeologists since Kroeber pointed it out as a distinct form and suggested North Andean, and possibly Central Amercan, relationships for the cursive tripod style (Kroeber, 1925, p. 212). However, since all tripods in the Central Andes do not possess the cursive painting, inquiry cannot proceed along this line alone.

The problem can best be approached from the following points of view:

1. Varieties of the general tripod form and its related form, the tetrapod. The form itself consists of two major morphological features: shape of the container and shape of the legs. Container shapes are extremely variable in the Central Andean area, with the following types present: open bowls, convex-sided open bowls, straight-sided open bowls, hemispherical bowls, globular bowls, ollas, braziers, covered bowls, constricted-mouth bowls, and animal forms. Likewise leg shapes are variable. These types are present in Peru and in highland Bolivia: long-pointed conical, conical, cylindrical, bulbous, short-stubby and lug legs, animal head.

2. Surface treatment. This is a means of determining whether the tripod form was a utilitarian or an art object or both. We have therefore noted, wherever possible, whether the surface was painted, plain, incised, or appliquéed.

3. The occurrence of tripod forms. In the Central Andean area tripod forms are concentrated in those areas nearest cultures which do not fall in the mainstream of Peruvian-Bolivian cultural development, that is, in the North Highlands and on the North Coast of Peru, and in the South Highlands. Therefore, we shall consider the distribution of the tripod in the various cultural areas of the region before making comparisons, first between the Peruvian and Bolivian areas, then between this region and Ecuador, Colombia, Venezuela, lowland Bolivia, and Amazonia, to reveal possible cultural relationships.

Distribution of Tripods in the Central Andes

A geographical consideration of the archaeological areas, running from north to south, will allow us to place the tripods in their proper perspective (Fig. 17).

North Coast. The reader is referred to Fig. 18 for outlines of the various forms of tripods mentioned. As mentioned previously, it was on the North Coast of Peru that Kroeber first recognized the cursive tripod form. Compared to other regions of Peru the North Coast offers us a wealth of material with which to work. However, despite the great number of individual vessels from this region only one tripod form seems to be present: the shallow open bowl, its leg form either conical or long-pointed conical. Surface treatment of the tripod vessel on the North Coast is extremely variable.

On the basis of excavations carried on in the Virú Valley in 1946 (Strong, 1947), Bennett has recently proposed (personal communication) a new scheme of major culture periods for the Central Andean area. In this plan all styles in or near the Tiahuanaco horizon are termed "Expansionist." Other names are proposed for the periods which precede the Expansionist, but inasmuch as no certainly identified tripods occur in these styles they need not concern us here. However, as is shown below, tripods do occur in some areas later than the Expansionist period. These will be termed Inca.[1]

In the following outline, Bennett's scheme is used to show the distribution of tripods on the North Coast.

PRE-EXPANSIONIST

None.

EXPANSIONIST

Tiahuancoid A (Epigonal)

Moche, Huaca del Sol Site A. Cursive ware: shallow open bowl, long-pointed conical legs (Kroeber, 1925, p. 212; Uhle, 1913, Fig. 19).

Moche, Trujillo (general region). Non-cursive ware: shallow open bowl, long-pointed conical legs (Kroeber, 1926*a*, p. 32 and Pl. V: 5).

Moche, Chan Chan. Cursive ware: shallow open bowl, long-pointed conical legs (Bennett, 1946*a*, p. 123).

Chicama, Chiquitoy. Tiahuanacoid: shallow open bowl, conical legs (Hrdlička, 1911, Pl. 1).

Chicama, Pampa de Chicama. Cursive-like: shallow open bowl, conical legs.

Plain Orange ware: shallow open bowl, conical legs.

Orange ware: pressed designs, shallow open bowl, conical legs.

Plain Black ware: shallow open bowl, conical legs.

Black Pressed ware: shallow open bowl, conical legs (Bennett, 1939, p. 90).

Tiahuanacoid B

(Classed as local styles by Bennett, who also places here the Cursive Modeled style. Kroeber doubts the position of this style but accepts the tentative position given to it by Bennett.)

Casma. Cursive modeled ware: shallow open bowl, long pointed conical legs (Schmidt, 1929, Pl. 218).

Chicama, Pata de Burro. Red ware: shallow open bowl, conical legs (Bennett, 1939, p. 89).

Tiahuanacoid C (Black-White-Red)

Virú, Taitacantin. Black-White-Red ware: shallow open bowl, conical legs.

Black ware: two pieces of tripod vessels.

Black ware: shallow open bowl, conical legs (Kroeber, 1930, pp. 100–1; Bennett, 1939, p. 51).

Virú, Huaca de la Cruz. Orange and Black ware: shallow open bowls with conical legs.

Black ware: shallow open bowl with somewhat cylindrical legs (Bennett, 1939, p. 44; personal communication).

Virú, Carmelo C-5. Black ware: one tripod leg (Bennett, 1939, p. 77).

INCA

None.

The net result of such a listing is to indicate that the tripod form is lacking in the pre-Expansionist periods of the North Coast region. Moreover, there seems to be no real evidence for the occurrence of the form in the Late periods of the area. This is so if we have correctly interpreted the Pampa de Chicama material of Bennett. It appears, then, that the tripod form is only of Expansionist time.

Influences of North Highland and Tiahuanacoid types may be said to have affected this picture. It is entirely possible that the North Highland influences, in the form of the cursive ware, preceded the Tiahuanacoid, since Chavin influences are present in the pre-Expansionist periods. However, the lack of tripods in the Chavin sites of the highlands seems to indicate a later date for all tripod pottery and thus would lead one to conclude that the Cajamarca or Recuay and Tiahuanacoid influences were simultaneous in the North Coast area.

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[1] The author wishes to acknowledge with gratitude the aid of Dr. Wendell C. Bennett who made available unpublished data from lowland Bolivia and recent developments in the chronology of the Central Andean area.

FIG. 17. Distribution of tripod vessels in the Central Andes.

North Highlands. The North Highlands offer the greatest number of tripod vessels reported from any area. It was in this region that Tello recognized the tripod form: in the Recuay and Cajamarca areas (Tello, 1929). In the case of the latter, styles of surface decoration showed affinities to the cursive forms on the North Coast. Tripods may be earlier here, in Tello's Lagenaria, than in any other area, and it is possible the cursive form originated here. Tripods are present in the North Highland area in all Expansionist and Inca periods with the exception of the Black-White-Red. Following is a summary of the location and chronological position of tripods in this area.

PRE-EXPANSIONIST

None.

EXPANSIONIST

Carhuaz (Tello's Lagenaria). Monochrome Red or Black ware: globular bowl, everted rim, conical legs; globular bowl, in-curved rim, conical legs; straight-sided open bowl, long-pointed conical legs (Tello, 1929, p. 91).

Katak, Subterranean House Site 9 H-2. Monochrome ware: shallow open bowl with bulbous legs; globular bowl, everted rim, long-pointed conical legs (Bennett, 1944*b*, pp. 53, 101, 103, Fig. 32).

Patay-Katak, Recuay. Red on Orange ware: shallow open bowl, conical legs, long-pointed conical legs (Bennett, 1944*b*, p. 70).

Ayapampa, Site 5H. Red ware: shallow open bowl, conical legs (?), long-pointed conical legs (Bennett, 1944*b*, p. 61).

Marañón general (Middle Huamachuco). Cursive-like style: shallow bowl, long-pointed conical legs (Bennett, 1946*a*, pp. 132–3, Fig. 16).

Cajamarca (Middle Huamachuco). Cursive ware: shallow open bowl, long-pointed conical legs (Muelle and Blas, 1938, p. 201, Pl. 72, *a*).

Wilkawain Tiahuanaco, above-ground house site. Polychrome ware: shallow open bowl, conical legs.

Wilkawain Tiahuanaco, deep stone-lined tombs. Orange ware: shallow open bowl, conical legs, toy vessels.

Black on Orange ware: shallow open bowl, long-pointed conical legs.

Wilkawain Tiahuanaco, house collection. Brown or Orange ware: shallow open bowl, conical legs (?), long-pointed conical legs, crude cylindrical-like legs (Bennett, 1944*b*, pp. 20, 26, 27, 30, 49).

Marca Huamachuco (Late Huamachuco). Buff-Orange, Terra Cotta, Dark Brown, Black wares: legs only present, long-pointed conical, short stubby (McCown, 1945, pp. 285, 294, 337).

INCA

Viracochapampa. Dark Brown or Terra Cotta ware: hemispherical bowl, long-pointed conical legs.

Buff slip, exterior band of red: hemispherical bowl, long-pointed conical legs.

Black, Terra Cotta, Buff wares: tripod legs (McCown, 1945, pp. 322–5, Fig. 18).

Central Coast. The Central Coast is the only region in which there is a suggestion, although dubious, for the occurrence of tripods in a pre-Expansionist period. The Expansionist period, as on the North Coast, shows the greatest incidence of such forms. However, the cursive tripod is lacking in this area. All of the tripods which are painted have Tiahuanacoid motifs.

PRE-EXPANSIONIST

Interlocking

Chancay. Interlocking ware with appliqué heads on rim: olla, lug legs. It is not certain whether this represents a true tripod form. However, lugs appear to have been attached to the rounded base of the olla in order to steady it. This should be considered only as a probable form (Kroeber, 1926*b*, Pl. 90, B and C).

EXPANSIONIST

Early Lima

Nievería. Red ware: globular bowl, everted rim, long-pointed conical legs (Gayton, 1927, p. 311); globular vessel with long cylindrical neck, bulbous legs (d'Harcourt, 1922, Pl. 4, Fig. 6).

Tiahuanacoid (Epigonal)

Huacho. Black ware with appliqué decoration of animal heads (may be related to cursive modeled), shallow open bowl, long-pointed conical legs (Schmidt, 1929, Pl. 227).

Pachacamac. Polychrome ware: hemispherical bowl, long-pointed conical legs (Schmidt, 1929, Pl. 292).

A tetrapod form is also reported from Pachacamac with the hemispherical bowl, long-pointed conical legs form (Baessler, 1902, Pl. 134).

INCA

None.

Central Highlands. The farther south one goes in the Peruvian-Bolivian area the rarer the tripod form becomes. In the Central Highlands there are no reports of tripods in any of the periods preceding the Inca. Possibly this is due to the lack of knowledge concerning the earlier periods of this region. Likewise, the forms of the tripods show no particular relationship to those in the areas just discussed. The most typical is the tripod brazier, which is a common form in Inca sites. The following occurrences have been reported for the Central Highlands area.

INCA

Machu Picchu. Monochrome ware: brazier, cylindrical legs (Bingham, 1930, p. 173, Fig. 125).

Cuzco. Dark brown ware: composite bowl with in-curved rim, cylindrical legs (Schmidt, 1929, Pl. 354); brown covered bowl with three spouts, cylindrical legs (Seler, 1893, Pl. 7, Fig. 2).

South Coast. Until the report of Kroeber, no tripod was known from the South Coast area. He discovered a globular bowl with an everted lip and long-pointed conical legs at Ocoña (Kroeber, 1944, p. 22, Pl. 8, E). There is no way of dating this piece since so little work has been done here. It should be pointed out that the form is very much like, or nearly identical with, one of the tripod forms designated by Bennett as a Recuay style and by Tello as Lagenaria or Andean Archaic.

South Highlands. As in the Central Highlands, the tripod form in the South Highlands is late in occurrence. Only from the Arani and La Paz (Llogheta) regions are these forms reported. Although Bennett does not specifically place the Arani style, he has tentatively set it before Decadent Tiahuanaco. It should be noted that the only occurrence of the tripods in the Tiahuanaco area is from what appears to be a Decadent site. Since there are many more tripods in the Arani sites it appears possible that the tripods from Llogheta were the result of diffusion from the Arani region and farther east. This will be discussed in more detail below.

EXPANSIONIST

Arani II

Arani, Cochabamba. Black ware: vase with constricted neck, lug legs (Bennett, 1936, p. 360).

Decadent Tiahuanaco

Llogheta. Plain Orange ware: convex-sided open bowl, slab legs.

Plain ware: hemispherical bowl, shouldered legs, hollow (Bennett, 1936, p. 495; personal communication).

Arani III

Arani, Cochabamba. Painted ware: convex open bowl, bulbous legs (Bennett, 1936, p. 361).

PERIOD UNKNOWN

Chiripa, Pit 10, 1.0–1.5 meter level in fields outside of mound. Black-on-Red ware: thick slab leg (Bennett, personal communication).

La Paz Museum. Plain Red ware: spherical jar with cylindrical neck, lug legs (Bennett, personal communication).

DISCUSSION OF THE CENTRAL ANDEAN AREA

The listings above reveal several interesting geographical and chronological groupings. In general, it will be seen that the North Coast and the North Highlands show the heaviest concentrations of the tripod form with the Central Coast and the South Highlands following in that order. Tripod forms are almost completely absent in the Central Highlands and on the South Coast (Fig. 17).

Chronologically, tripods are earliest in the North Highlands and on the Central Coast. Later Expansionist periods see a great increase in their distribution and frequency, with the North Coast and the South Highlands yielding tripods of this date. In the Central Highlands tripod forms do not occur before the Inca period and they are apparently absent in the North Coast, Central Coast, and South Highland regions during the latest Expansionist periods. With the advent of the Inca styles over the whole of the Central Andean area we find that, except for the North Highlands, the earlier forms of tripods disappear and are replaced by the Inca types, of which the brazier with cylindrical legs is the most common. It appears that the Incas had container shapes other than the brazier, but the cylindrical leg seems to hold throughout.

Although the earliest tripods are found in the North Highlands and on the Central Coast of Peru, these areas appear to share only one form: the globular bowl with everted lip and long-pointed conical legs. These come from Lagenaria[2] and Early Lima. A possible relationship with Chavin is noted in the Chavin globular everted rim bowl (Bennett, 1946*a*, p. 85). The Early Lima form has, in addition, strip handles below the rim. There may be another parallel in the presence of bulbous legs on the tripods both in the Subterranean House Site 9H-2 at Wilkawain and in Early Lima. However, the Wilkawain instance is part of a shallow bowl and the bulbous legs in the Early Lima style are part of a vessel with a spherical body and long cylindrical neck. Also, as mentioned above, the dating of the latter is uncertain. Aside from the parallels just mentioned

[2] The Lagenaria style does not fit with the other tripods of the North Highlands, either in form or decoration. If the Lagenaria examples are removed from the tripod inventory in this area, the remaining tripods fall into one general category. On the basis of its unique quality one is inclined to place the Lagenaria material earlier than any of the "Expansionist" styles. However, since there is no way of dating Lagenaria, a compromise has been made by treating it as the earliest of the Expansionist styles.

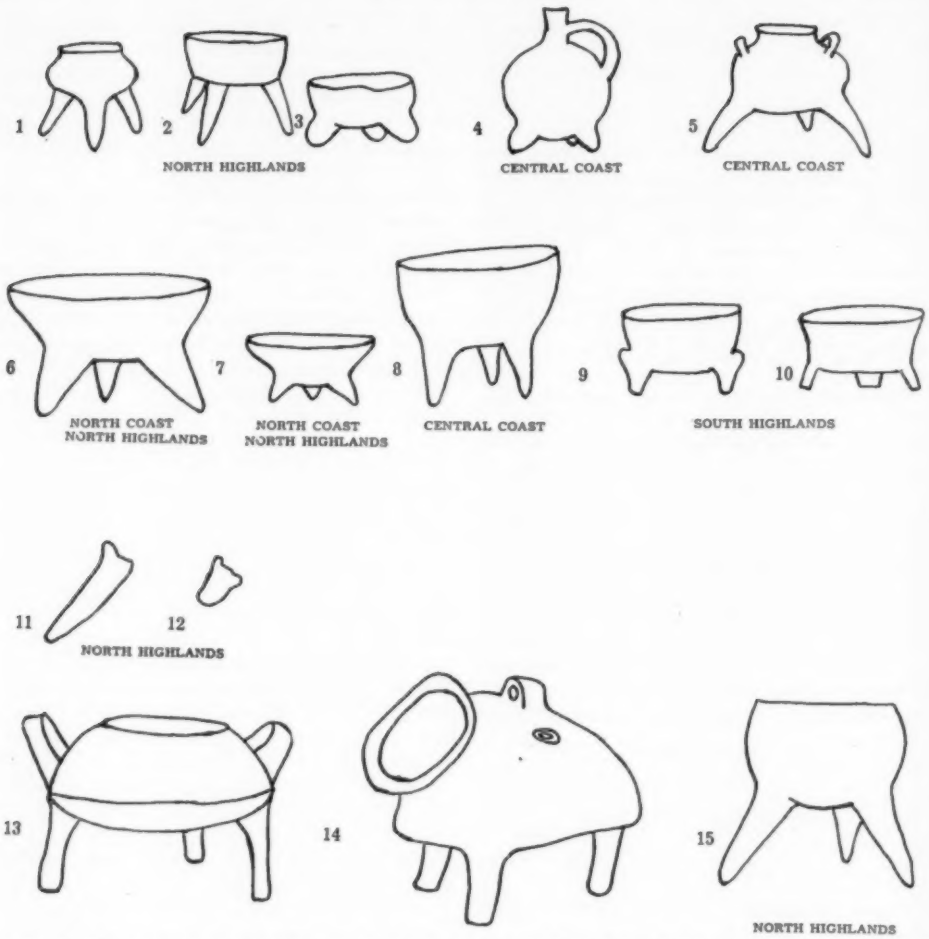

FIG. 18. Tripod forms in the Central Andes: 1, globular bowl, everted rim, long-pointed conical legs; 2, straight-sided open bowl, long-pointed conical legs; 3, shallow open bowl, bulbous legs; 4, globular vessel with long cylindrical neck bulbous legs; 5, globular bowl, everted rim, long-pointed conical legs; 6, open bowl, long-pointed conical legs; 7, open bowl, conical legs; 8, hemispherical bowl, long-pointed conical legs; 9, hemispherical bowl, hollow shouldered legs; 10, convex open bowl, slab legs; 11, long-pointed conical tripod leg; 12, short stubby tripod leg; 13, composite bowl with incurved rim, cylindrical legs; 14, brazier; 15, hemispherical bowl, long-pointed conical legs. 1–5, early Expansionist; 6–10, middle Expansionist; 11–12, late Expansionist; 13–15, Inca.

each area has forms peculiar to it alone. In the North Highlands we find globular bodied vessels with incurved rims and long pointed legs. A parallel in form to this is found at Ocoña but its chronological position there is unknown. Also in Lagenaria, the flat straight-sided open bowl is unique in that area and period. The tentatively identified tripod from the Interlocking period of the Central Coast would be the earliest occurrence in that region, if we accept the presence of small lugs on the base of a large olla-like vessel as sufficient grounds for designating this specimen as a tripod.

As indicated above, the tripod form reached its greatest development during the later Expansionist periods. Besides continuing in the North Highlands and the Central Coast, it first appears at this time on the North Coast and in the South Highlands. The North Coast occurrence is apparently a diffusion from the

North Highlands. The origin of the South Highland tripods is not certain. The types present seem to be survivals of Tiahuanaco body forms and of varieties showing affinities to Lowland Bolivia. The greatest number of finds are reported from the eastern part of the area, where contact with the Bolivian Lowlands undoubtedly took place. Since there is little or no evidence that the South Highlands was influenced by either the North Highlands or the Central Coast, it is reasonable to assume that the tripod form entered the South Highlands from the east.

The Expansionist forms of the North Coast and North Highlands show not only a great uniformity of shape, but an employment of practically all styles of surface treatment available to the potter during these times. This is the period of the cursive tripod. Bennett sees some differences of stylistic variety, but, in the main, the coast and highland regions are the same. The form of the tripod during this period in the northern regions of the Central Andes is almost invariably a shallow open bowl with conical or long-pointed conical legs. This holds true whether the style is Cursive Tripod, Marañón, Tiahuanacoid A, Tiahuanacoid B (cursive modeled), Tiahuanacoid C (Black-White-Red), or Wilkawain Tiahuanacoid. In fact, one finds all these styles in conjunction with the tripod form.

During the later Expansionist periods, the Central Coast area shows a continuation of the tripod form. The shallow open bowl with long-pointed conical legs reported by Schmidt from Huacho, parallels the forms reported from the northern areas, and certain modeled features of the legs suggest the cursive modeled style. The other occurrences of the tripod form on the Central Coast show new shapes. Tripods have been reported from Pachacamac, but they are hemispherical bowls with long-pointed tripod legs. The ware is painted and possesses the Middle Ancon I-Tiahuanaco motif. As listed above, a tetrapod is reported from Pachacamac. It possesses all the features of form and design presented by the tripods found there.

Tripods first appear in the Southern Highlands during the later Expansionist periods. Here the body forms are mostly carry-overs from the previous Tiahuanaco periods. Only one site in the Tiahuanaco area proper has yielded tripod vessels, Llogheta near La Paz, where a convex-sided open bowl with slab legs and a hemispherical bowl with shouldered hollow legs were found. Both of these forms are reported by Nordenskiöld from Mizque, and in all probability indicate cultural interchange between Highland and Lowland Bolivia.

The origin of the slab-legged bowl is not clear. In this connection one might call attention to the slab-legged stone bowl of tripod form, since the ceramic bowl forms are almost identical. These stone vessels occur in the Classic Tiahuanaco period, thus antedating the tripods found at Llogheta and Mizque. The possible derivation of the ceramic slab legs at Llogheta and Mizque from Classic Tiahuanaco stone vessels, however, must await a more thorough-going analysis which is beyond the scope of this paper.

The predominating tripod form in the Arani area is the convex open bowl with bulbous legs, but a restricted neck vase with lug legs and a hemispherical bowl with bulbous legs are reported from the Arani II period. No conical or long-pointed legs are reported from this area, with the exception of an undated hemispherical bowl with conical legs in the Ayala collection (Bennett, personal communication).

An interesting fact is to be noted in the Bolivian area: The farther one goes eastward the greater the number and variety of the tripod forms. As will be shown in the next section, it appears quite likely that the convex open bowl form of Tiahuanaco was utilized as a tripod body in the Lowlands along with other Tiahuanaco culture traits, but that the tripod form originated in this area (Lowland Bolivia) rather than diffusing from the North Highlands to the South Highlands.

So far as can be determined, with the exception of the North Highlands, the tripod form disappeared from the Central Andean scene in the latest Expansionist periods. Only in the Late Huamachuco period of the North Highlands are there any certain indications of the tripod. Here unfortunately the evidence is so fragmentary that we can ascertain only the types of legs. McCown reported that all the legs are of plain ware and it seems that there are only two forms. The long-pointed conical leg persists and a short stubby non-conical form is new.

The Inca periods see the reappearance of tripod forms in all the areas of the Central Andes. Only in the North Highlands are types other than Inca found. Hemispherical bowls with long-pointed conical legs are present at Viracochapampa. McCown shows, however,

that they are part of a configuration which is distinctly non-Inca, although undoubtedly greatly influenced by the Inca.

For the Central Andean region these points stand out.

1. It should be emphasized that the tripod form is absent in the pre-Expansionist periods. A possible exception to this is the Lagenaria configuration. Tripods are lacking in the following: *North Highlands*, Chavin, Huaraz White-on-Red, Polychrome Recuay; *North Coast*, Cupisnique, Salinar, Gallinazo, Mochica; *Central Coast*, Early Ancon and Supe, Chancay White-on-Red, Interlocking (?); *Central Highlands*, Chanapata; *South Coast*, Paracas and Nazca; *South Highlands*, Pucara, Chiripa (?), Early Tiahuanaco, Classic Tiahuanaco.

2. The North Highland tripod forms persist throughout more of the culture sequence than in any other Central Andean area.

3. Tripods appear earliest in the North Highlands and the Central Coast, although there may be some doubt about the dating of the Central Coast occurrences.

4. In all other areas, excepting the Central Highlands and the South Coast, tripods appear slightly later in the Expansionist periods. It is here that the greatest efflorescence of the form occurs.

5. The South Highlands appear to have been influenced from the Bolivian Lowlands rather than from the areas to the north.

6. The latest "Expansionist" periods see the disappearance of the tripod form except in the North Highlands.

7. The tripod form is re-introduced with the spread of the Inca Empire, but it is not a re-emergence of the old traditional forms.

RELATIONSHIPS WITH OTHER SOUTH AMERICAN AREAS

Since it has been shown that the greatest concentration of tripod forms in the Central Andes lies in the northern areas it is only logical that we should search for relationships in adjacent areas in the endeavor to discover evidence of diffusion. This leads us to a consideration of the tripod form in Ecuador, Colombia, and Venezuela. Likewise, because there is no apparent connection between the occurrence of tripods in the South Highland region on the one hand, and the Central Coast and northern areas on the other, we must look for relationships of the South Highland tripods in the lowlands of Bolivia, northern Argentina, and Brazil.

Ecuador. When the tripod forms of Ecuador are considered, several points of importance come to light. We immediately note the greater number and variety of the tripod forms. Also, tetrapods are more frequent. Many new body shapes are to be found, and the types of legs are more numerous. Leg forms not encountered in the Central Andean region, such as *hoja de cabuya* (open hollow), looped, and bifurcated are present. The tripod form is found in all areas surveyed archaeologically, and, with the exception of the Tuncahuán, it is present in all archaeological periods which have been assigned a chronological position.

However, when one looks for definite parallels with the Central Andean region the resemblances are not as numerous as one might expect. Although tripods are found in the Azuay-Cañar region they do not appear to have morphological relationships with northern Peru (see Bennett, 1946*c* and Collier, 1943). In the Tungurahua-Chimborazo area of the central highlands of Ecuador, forms strikingly like those of the northern Peruvian area occur in the Proto-Panzaleo I and II periods of Jijón y Caamaño (Jijón y Camaaño, 1927, pp. 119–26). Here, shallow open bowls with solid conical legs have been unearthed. The ware is painted, but the design motifs show no resemblances to the painted wares of this form in the north Peruvian regions. Jijón y Caamaño has also reported tripod forms from the Imbabura area which seem to show relationships with the North Highlands of Peru (Jijón y Caamaño, 1912, Pl. 24: 3, 4; Pl. 24: 1; Pl. 29: 4). Tripods occur in the three pre-Inca periods of the region with the following forms represented: globular bowls with everted rims and long-pointed, cylindrical, or short conical legs. All are monochrome wares. The globular bowl with everted rim and long-pointed legs is similar to a form found in the Lagenaria period in the North Highlands of the Central Andean region. Since the form occurs early in both areas it would seem that we should recognize a relationship. The same type of tripod is found in Carchi in the far northern highland region of Ecuador (Collier, 1946, p. 770). There is unfortunately no way of dating the form in this area, but it seems to be related in some way to the Imbabura and Lagenaria types.

It was in the tripod forms of Manabí that Kroeber found certain resemblances to the cursive tripods of the Peruvian North Coast. It is true that cursive-like motifs are present in Manabí, but their resemblances to the motifs of Peru seems to be of a general rather than specific nature. Be that as it may, the fact remains that shallow open bowls with solid coni-

cal legs do occur in Manabí (Saville, 1907, Vol. 1, p. 73). This, combined with a style of decoration generally like cursive tripod suggests some connection. Determination of the true nature of this relationship must await further excavation in Ecuador. Squat hemispherical bowls with conical legs are also found in Manabí, but we can see no identifiable relationships with the Central Andean region.

Shallow open bowls with conical legs also occur in Esmeraldas (Bennett, 1946*c*, p. 74), where they have the same body form combined with bulbous legs. However, these forms, although they resemble the cursive tripod and the Katak bowl tripod, do not show enough detail for one to state a definite relationship. Hemispherical bowls with long-pointed legs are found in Esmeraldas (Saville, 1910, p. 197) which might suggest some relationship with the Inca period at Huamachuco, but, since the geographical gap is great and since no chronology has been determined for the Esmeraldas region, not even speculations can be safely made.

Colombia. Like Ecuador, Colombia has many more types of tripods than the Central Andean area. However, there are not as many suggestions of relationship between Colombia and northern Peru as between Ecuador and northern Peru.

The San Agustín, Matanzas, and Tierradentro styles possess tripods which show some similarity with northern Peru. In both San Agustín and Tierradentro we find bowls with globular everted rims and long-pointed legs (Bennett, 1944*a*, pp. 29, 36, 42, Fig. 2-F). The ware is monochrome brown, red, or orange. The chief difference lies in the fact that the Colombian forms have slightly bent legs while the Central Andean legs are straight. Nevertheless, Bennett has pointed out many resemblances between the Chavin and the San Agustín ceramics, such as the monochrome ware, extensive rim variations, and predominantly incised design. A parallel in form, cited above, seems to indicate a relationship between the Early period tripods of Southern Colombia and those of Lagenaria in the Central Andes. The necessary connecting link may be in the pre-Inca periods of Jijón y Caamaño in Imbabura.

Venezuela. While tripods and tetrapods occur in Venezuela it is interesting to note that with one exception they have a northwestern distribution. That is, they occur in the regions which are a part of, or adjoin, the Andes. Some of the tripod forms which occur here show structural relationships to tripods found in Colombia and Ecuador. The same may be said of certain forms found in the lowland areas of Bolivia.

Since the relationship among many Venezuelan sites is not known in any detail, no all-embracing chronological scheme has been devised. Because of this, the discussion of tripods in Venezuela is best made solely in terms of areal occurrence.

The most eastern occurrence of legged vessels in Venezuela is at the Los Barrancos site in Monagas (Osgood and Howard, 1943, p. 109). Here were found solid legs which appear to have come from vessels similar to the tetrapod plates of the Valencia region.

Farther west in the Carabobo-Aragua region Kidder has been able to establish some culture succession and he reports several legged vessels. In his earlier La Cabrera phase, Kidder found low tetrapod vessels with lug legs (Kidder, 1944, p. 81), also single solid legs which appear to be aberrant forms of the hollow shouldered type. In the later Valencia phase, tripods and tetrapods are virtually absent.

In the state of Lara tripods are far more common. Kidder found many forms which were absent to the east and showed relationships to the Andean region (Kidder, 1944, pp. 121, 122, 145). In the Distrito Tocuyo olla forms with straight conical (?) legs and large globular bowls with everted rims and large hollow shouldered legs appear. According to Kidder, the latter show definite relationships to the Andean region. In central Lara bowls with solid or hollow tripod legs are common. The leg form appears to be a variation of the hollow shouldered type. Osgood and Howard (1943, p. 82) also report tripods from Quibor where legs of the hollow shouldered type are a common occurrence.

No complete tripod vessels are known from the state of Falcón to the north of Lara. However, a variety of legs have been reported by Kidder and by Osgood and Howard. Two major forms are known from the Paraguana area, the hollow shouldered and the V-shaped (Osgood and Howard, 1943, p. 67). Kidder reports free legs from the Hato Viejo and El Mamón sites but does not describe them (Kidder, 1944, p. 141). The hollow shouldered legs have a continuity with those in Lara and also with the Andean region. The V-shaped leg, as Kidder points out, is paralleled in Ecuador.

To the south of Lara in the state of Trujillo, tripods are more numerous than in any area discussed heretofore. Kidder mentions the following forms from the Carache region: hemispherical bowls with slender, highly placed, hollow shouldered legs (Kidder terms these legs luted); hemispherical bowls with low-placed, hollow shouldered legs; olla-like forms with short, hollow shouldered legs (Kidder, 1944, pp. 98, 106, 119). From the Distrito Bocono come a globular bowl with conical legs and many small bowls with large solid shouldered legs (Kidder, 1944, pp. 121–2).

Mérida, which lies in the Venezuelan Andes, has not been the subject of systematic archaeological exploration with the exception of the work done by Osgood and Howard at the Tabay site (Osgood and Howard, 1943, pp. 92–5). However, most of the legged forms of pottery occurring in Trujillo are found in Mérida and others having relationships with Colombian and Ecuadorean pottery have also been reported.

As Kidder (1944, p. 155) points out, the concentration of tripods in western Venezuela indicates an Andean origin for this form. Andean influence in the form of the hollow leg is absent east of central Lara. On a distributional basis the hollow shouldered leg is also of western origin in Venezuela. Both the V-shaped and hollow shouldered legs show affinities to Ecuador, a relationship which is made more plausible by the virtual absence of these forms in Colombia. On the other hand, the greater incidence of tetrapods in Colombia would seem to indicate connection between Colombia and Venezuela on this count. It may be suggested that the area which will reveal exact relationships between highland Ecuador and Venezuela is the montaña.

Lowland Bolivia. As indicated previously, Lowland Bolivia is a center of the tripod form. It is here that the tripods found at Llogheta appear to have had their origin. The work of Bennett in this area offers us the only attempt to set up a chronological sequence of the archaeological cultures. Consequently, the discussion to follow will proceed along the lines laid down by him. We shall consider the tripods in terms of their occurrence in his major time periods: Early, Middle, and Late.

Two cultural forces of a general nature are to be noted here: (1) Tiahuanaco, as it is found in what Bennett calls Derived and Decadent Tiahuanaco, (2) influences from the lowland area itself and the areas to the east and north of Lowland Bolivia. It should be pointed out that the earliest periods of the lowland area equate in time with the end of the Classic Tiahuanaco period in Highland Bolivia.

The earliest occurrence of the tripod form in the lowland area comes from Mizque, where Bennett (1936, p. 387) reports two tripods with designs resembling the Derived Tiahuanaco of the Arani district. It appears likely that the convex-sided open bowl with hollow shouldered legs containing pellets, derived its body form from the Tiahuanaco cultures, but the shape of the leg is unlike anything found in the South Highland area. (Jorge Muelle stated in a personal communication that there were legs of this sort in the Museo Nacional in Lima, but he did not indicate the geographical position.) The open flaring cups with slab legs, also from Mizque, again indicate relationship with the Tiahuanaco cultures. Nordenskiöld reports a tripod with a hemispherical bowl shape and hollow shouldered, pellet legs from Mizque (Nordenskiöld, 1917, p. 17). This form is also found at Llogheta in the South Highlands.

The Middle periods of Lowland Bolivia reveal a great many more occurrences of the tripod form. In Mojos at Mound Masicito (Bennett, 1936, pp. 397–8; Nordenskiöld, 1930, Pl. XLIX, *a*), the following tripod forms have been reported: shallow open bowl with modeled animal heads and feet-legs; flat hemispherical bowl with both animal heads and slab-like hollow shouldered legs; convex-sided open bowl with animal heads or feet-legs. In the same area at Mound Hernmarck (Bennett, 1936, pp. 397–8; Nordenskiöld, 1930, Pl. XLVII, *a* and *b;* Nordenskiöld, 1913, Figs. 95, 96, 118, 120, *a*), there are a variety of tripod forms. Shallow open bowls with animal head and feet-legs parallel those found at Mound Masicito. Globular bowls of the burial urn type and small globular bowls, both with small pointed legs, are reported from Mound Hernmarck. Painted designs on the latter suggests Decadent Tihuanaco influence. Hemispherical bowls with small conical legs have not been encountered anywhere in the Bolivian region to the west of this site and represent a new type, as do open bowls and olla shapes with small conical legs. The Upper Mound Velarde style in Mojos also yielded tripods (Nordenskiöld, 1930, Pls. XLVIII, XLIX, *b*). Flattened hemispherical bowls with small pointed conical legs, shallow

open bowls with conical legs, and elliptical burial urns with small conical legs are noteworthy forms.

Also from the Mojos area Nordenskiöld reported tripods from the Río Guaporé and its tributaries. Three forms were present: hemispherical bowls with short stubby conical legs; squarish hemispherical bowls with splayed slab legs; an effigy bowl with lug legs (Nordenskiöld, 1930, Pl. LIII).

Nordenskiöld and Métraux have published descriptions of tripods from the Santa Cruz region which are identified with the Guaraní period (Métraux, 1933, p. 386, Fig 24: 6; Nordenskiöld, 1913, p. 255; Nordenskiöld, 1931, Pl. LII). Globular bowls with short stubby legs were found by both investigators. Hemispherical bowls with short bulbous lug legs, globular bowls with thick conical legs, composite silhouette vessels with thick conical legs, and small olla-like vessels with flared or converging rims and short bulbous legs, are reported from sites near Santa Cruz de la Sierra.

The only other tripods which can be attributed to a Middle time zone come from Chimay, a town on the Río Beni (Nordenskiöld, 1930, Pl. XLIX, *b*). These tripods have a composite bowl form and short stubby legs. It is possible that there may have been some relationship between the composite bowls in the Santa Cruz region and Chimay.

Tetrapods are reported from the Lower Velarde zone, Early period in Mojos, and from the Middle period of Chimay in Beni (Nordenskiöld, 1913, p. 234). The Chimay vessel has cylindrical legs and may be related to the Inca tripods. Likewise an olla form with cylindrical legs from the Diaguita region in Argentina (Márquez Miranda, 1946, p. 645, Fig. 61) would seem to suggest Inca relationships, since some investigators have suggested an Atacameño-Diaguita origin for the Inca.

Consideration of the Lowland Bolivia tripod forms seems to reveal the following: (1) Tiahuanaco influence was felt in the area in design and body form. (2) The tripod form was probably introduced into the Arani and La Paz regions from the lowland region. (3) Since there is no indication of the tripod before Decadent Tiahuanaco in the South Highlands, the source of the lowland tripod forms must lie to the north in Brazil and the montaña of Peru and Ecuador. This is made all the more apparent by the presence of the hollow shouldered and conical leg forms. (4) The slab-legged forms possibly were derived from the Classic Tiahuanaco stone vessels. (5) Because the Inca tripods show no morphological relationships with any Central Andean forms, the Chimay and Diaguita cylindrical leg vessels may be prototypes of Inca forms.

Amazonia. Legged vessels of any sort are extremely rare in Amazonia. Those which do occur are found at sites where they occupy the status of aberrant forms. Howard mentions an open bowl with four effigy feet from the Napo region (Howard, 1947, p. 43). He also designates tripod and tetrapod bases as a rare form at Santarem (Howard, 1947, p. 52). From Marajó Nordenskiöld pictures a globular jar with small bulbous legs and a flattened globular bowl with short bulbous legs (Nordenskiöld, 1930, Pl. XIV, *a–d*).

At our present stage of knowledge of the pre history of Amazonia there is very little which can be said concerning the possible relationships of the rare legged forms from this region. It is interesting to note that they are concentrated on the main water course of the Amazon, which possibly indicates better opportunities for diffusion. Also, the Napo tetrapod, being nearer the montaña and Venezuela, may have derived the form from those regions.

CONCLUSIONS

The foregoing survey of the tripod form in the Central Andean region brings to light several cultural relationships and problems. It has also enabled us to clarify certain factors which will enter more and more in the reconstruction of South American culture history.

The treatment of the Central Andean material has revealed that, with one possible exception, the tripod pottery form is relatively late in this area. Excluding the Lagenaria configuration in the Recuay region, it has been shown that the form appears and develops to its highest peak during the Expansionist period. Thus, as has been indicated, the earlier periods of Peruvian prehistory, despite the great ability in ceramic elaboration, lack the tripod and its related form, the tetrapod. The North Coast and Highlands of the Central Andean region show the greatest development of the tripod and, as well, the greatest uniformity of form. The origin of this style is yet to be discovered, but it must almost certainly lie to the north

since the only evidence we have at present indicates some sort of connection with western Ecuador.

The distinctive quality of the Lagenaria material presents several problems. First, it is not of the same tradition as other tripods in the Central Andean area. Second, morphological relationships with highland Ecuador and Colombia are possible on the basis of what we know now. Also, certain relationships with Andean Venezuela may be worked out when we know more about the chronology of that region.

The South Highland region of the Central Andes apparently has no connection with the other tripods of this area. We have postulated primary and secondary sources for the form in this area. The most important characteristics most certainly originated in Lowland Bolivia. The secondary characteristics possibly arose in the imitation of the Classic Tiahuanaco stone vessels. Whatever the origin of the few tripods of the South Highlands, it is clear that the form in this area should be considered apart from those in the remainder of the Central Andean region. Consequently, at the present stage of knowledge the relative isolation of the Central Andean tripods stands out.

As we have considered the relationships of the Central Andean area to the other South American regions, the montaña has come to occupy a more and more important position in the culture history of South America. Unfortunately, we know less of this region than of almost any other in the continent. The rarity of tripods and tetrapods in the Amazon basin, the Guianas, and most of Venezuela point to the montaña as the route of diffusion which accounts for certain specific resemblances between Lowland Bolivia and Ecuador, Colombia, and Andean Venezuela. The most important structural feature which is probably genetically related in all these areas, is the hollow shouldered leg. This is a specific trait and its distribution is north Andean and east Andean slope. The break in continuity between the Bolivian instances and the Ecuadorean seems to be due to lack of archaeological exploration in the montaña. Likewise, as indicated in the discussion, certain solid leg forms may also be evidence of cultural relationships, although this is not so striking as in the case of the hollow shouldered form.

It has become apparent, then, that many new problems arise from a study of this sort. The relationships of Bolivia, the montaña, and the northwestern areas of South America are still not clear. The place of the Central Andean tripods in a continental framework can be only vaguely suggested. Most certainly further archaeological work in western Ecuador and Colombia will give the most fruitful results since it is there that we have the only suggestions of origin. Origins are suggested here since the form is relatively late in the Central Andean area. The relationship between the globular, everted rim bowl with long conical legs as found in Lagenaria, Ecuador, Colombia and western Venezuela indicate still another problem remaining to be solved. Lastly, a cursory comparison of the fish ware tripods of Panama and Nicaragua and the tall tripod ware of the Maya area with the various hollow shouldered tripods of Colombia and western Venezuela seems to indicate that all are only variations of the same morphological form. Since there appear to be relationships between all the hollow shouldered forms in South America a comparative study dealing with these areas is needed.

Although certain parts of this investigation are inconclusive, a certain amount of clarification and systemization of the knowledge concerning the tripod has been accomplished. There are several other ceramic forms which could be investigated in the same manner, notably the footed and stirrup-handled vessels. It appears to this author that comparative and synthetic treatments of this sort will carry us far in the reconstruction of American culture history.

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FLINT STATIONS IN CENTRAL ALASKA

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OUR knowledge of the prehistory of interior Alaska is still very limited. Nearly all archaeological work in the territory has been in the Eskimo and Aleut regions. In the interior planned, systematic surveys have been conducted by Froelich Rainey,[1] Frederica de Laguna,[2] and Frederick Johnson,[3] but most of these deal with relatively recent Athapascan sites. The only definitely pre-Athapascan site is the "Campus site" on the University of Alaska campus.[4]

From time to time random specimens are found in connection with road work, farming, and mining. Artifacts discovered in the Tanana Valley muck deposits, often at great depths, suggest, but do not prove, that man was contemporaneous with mammoth and other now extinct animals of the Pleistocene.[5] One specimen found in association with a mastodon jaw, but not actually embedded in the bone, adds to the circumstantial evidence that man was here in the late Pleistocene, if not earlier.[6]

However, one should remember that the muck deposit stratigraphy is notoriously unreliable. Complete skeletons of extinct mammals are rarely found *in situ* and the use of hydraulic mining machinery, with large nozzles and high water pressure, add to the difficulty of finding undisturbed remains. Even to find a specimen frozen solidly in muck is no guarantee that it is of the same age as associated skeletal material, because of the high rate of solifluxion. This sloughing process still occurs, but perhaps at a lower rate than when the climate was subarctic. Stream redistribution of the mucks, which has occurred on an extensive scale in the Tanana Valley, is perhaps even more important.

Several discoveries made during the war years and the next two years, as well as a few pre-war finds, are here reported. All are more or less accidental in character. The map (Fig. 19), adapted from S. R. Capps of the U. S. Geological Survey,[7] shows the maximum extent of Pleistocene glaciations and the relation of the different "stations" to the ice fields. A "station" is a place where a find, or cluster of finds, was made.

STATION 1, BIRCH LAKE

Birch Lake is a summer resort on the Richardson Highway, about 60 miles southeast of Fairbanks. Accidental flint discoveries near the lake have been reported before, but in 1947, Gilbert Monroe, a senior student in the School of Mines at the University of Alaska, located two new sites containing a large number of finished stone tools and flakes, and a few fragments of charred bone. The sites center about gravel pits recently opened by the Alaska Road Commission. The gravel is heavily weathered granite, covered with a few feet of muck. In addition to the two main sites, nearly every gravel pit and road cut in the region contains refuse flakes of flint, suggesting that the station represents settlements of relatively large size.

Birch Lake is still one of the best "moose pastures" in the region, and whitefish are very plentiful. The annual caribou run crosses in the

[1] Rainey, 1939, 1940.
[2] de Laguna, 1947.
[3] Johnson, 1946.
[4] Nelson, 1935.
[5] Hibben, 1943.
[6] Rainey, 1940.
[7] Capps, 1939.

vicinity. All this would have made the location ideal for occupation by primitive man.

The sites were later examined by Arthur Glover of the Territorial Department of Mines, Pierre St. Amand of the Geophysical Observatory, and Ivar Skarland of the Department of Anthropology at the University of Alaska. Mr Glover, who has conducted extensive research work on the Tanana Valley muck deposits, believes the Birch Lake mucks to be of both lacustrine and aeolian origin, deposited at the shore level of a receding lake. As the surface was already destroyed by earth-moving machinery, it was difficult to determine the depth of the artifacts as measured from the undisturbed surface, but it is estimated to have been from 6 to 18 inches.

People who were familiar with the area before the over-burden was removed say that there were no surface signs whatever to indicate that there had been a settlement. The region had been covered with a dense stand of birch, perhaps 80 to 100 years old, with an undergrowth of spruce. All this was removed during the stripping.

The mucks appear to be of post-glacial age and show no stratification.

The finds consist of the flints illustrated in Plate XV, A; and a large number of rejected flakes and cores. Some of the flakes are retouched by use only. The illustrated artifacts, in the order lettered, are briefly described as follows:

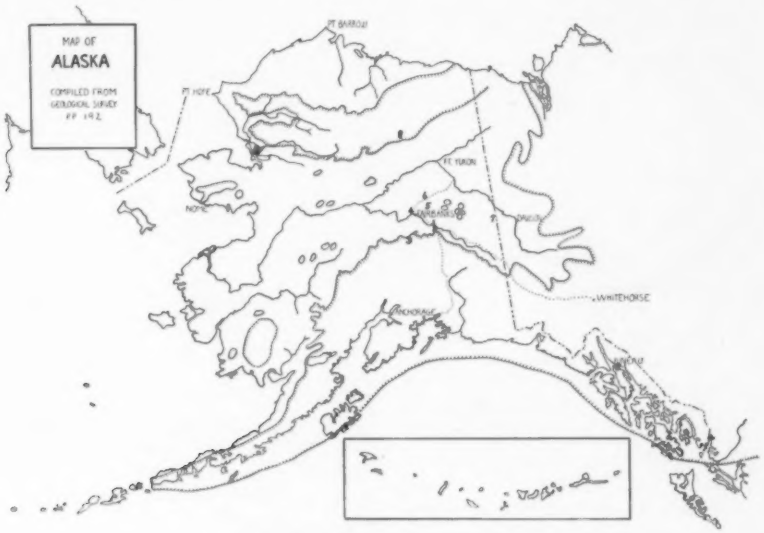

FIG. 19. Archaeological stations in central Alaska.

a) Side scraper, one edge boldly retouched on one face. Metamorphosed shale.

b) Side scraper, one edge lightly retouched on one face. Metamorphosed shale.

c) Side scraper, retouched by use on both long edges. Silicified slate.

d) Side scraper, retouched by use on out-curved edge. Silicified slate.

e) Side scraper, flat beach pebble about 1 cm. thick, heavily retouched on one edge. Silicified slate.

f) Lamellar flake, no retouching. Chalcedony.

g) Lamellar flake, no retouching. Black chert.

h) Lamellar flake, no retouching. Chalcedony.

i) Prepared core fragment, original shape undetermined. Silicified slate.

j) Prepared core, conoidal, base nearly circular, 3 cm. diameter. Lamellar flakes have been struck from more than half the circumference, and three large flakes from the remainder. Black chert.

k) End scraper. Keel at base slopes towards a wedge-shaped working end, partly broken away. Careful retouching on all but keeled end. Chalcedony.

l) Side scraper, crude retouching on the two long edges of convex face. Silicified slate.

m) End scraper, careful retouching on all but basal edge

of convex face. Upper edge of opposite face retouched. Chalcedony.

n) Side scraper, crude retouching all around convex face. Hornfels.

o) Semilunar blade fragment (cf. Fig. 20 and Pl. XV, B), retouching on both faces, upper edge and side; break on right side. Silicified slate.

p) Semilunar blade fragment, same form and material as (*o*).

q) Knife blade, retouched on both edges of only the convex face. Felsite.

r) Knife blade fragment, retouched on both faces, both edges. Silicified slate.

s) Point or blade fragment, retouched on both faces. Metamorphosed shale.

t) Blade fragment, retouched on both faces; probably semilunar. Silicified slate.

STATION 2, JARVIS CREEK

In 1946, Charles Hickcox, leader of a U. S. Geological Survey party (now Professor of Geology at Centenary College, Shreveport, Louisiana), found an end scraper of yellow jasper at Jarvis Creek, near Big Delta (Pl. XV, B, *k*). The specimen was found on the top of glacial material reworked by water, under conditions somewhat resembling those described for Station 3. It appears designed for hafting, and is retouched at right angles to a plane under the surface at the thick end. The find is the only one of its kind reported in this immediate area.

STATION 3, NENANA COAL FIELDS

Mr. Clyde Wahrhaftig of the U. S. Geological Survey has reported several finds from the Lignite Creek and Healy River region in the Nenana coal fields. In 1945, a plano-convex scraper was discovered in a blowout on top of the ridge between Lignite and Marguerite creeks at an elevation of about 3,020 feet, 150 feet above the present timber line. This scraper, flaked from all edges of its convex surface, is of yellow jasper. Its patina is not necessarily an indication of great age as the scraper was found on the surface. Pebbles of the same material were found in the Nenana gravels 7 miles to the southwest.

In 1947, Mr. Wahrhaftig found a semilunar blade and several worked fragments in the same locality under similar conditions. The semilunar blade (Pl. XV, B, *n*), of silicified shale, is flaked evenly about the edges of each face, so as to form a continuous sharp edge. Plate XV, B, *o* is a thin flake of the same material retouched at the rounded end, which may be either a large thumbnail scraper or the fragment of a longer implement. A side scraper of silicified shale (Pl. XV, B, *m*), was picked up by Mr. Wahrhaftig near a lake west of Healy, in the same general area.

STATION 4, COLLEGE

Station 4, College contains the "Campus site" and several finds on the University of Alaska campus,[8] all within a one-mile radius of the administration building of the university. Except for the Campus site the material consists of specimens found in fields, road work, and excavations for buildings. The station has yielded several finds, some of them obviously connected with the Campus site, although not at the same location.

The most interesting specimen is a broken "Yuma-like" blade (Pl. XV, B, *c*), found in 1947 by Mrs. J. L. Giddings, Jr. in the garden at the Giddings' residence on Rainey Ridge, half a mile west of the administration building. Mr. Giddings earlier picked up a blade tip (Pl. XV, B, *e*), similar in material and workmanship, on the road between his home and the campus. The more complete specimen lacks a base, is flaked towards the center from each side, and is made of chert. Both specimens show deep patination and are partly discolored as by fire.

Another blade fragment (Pl. XV, B, *g*) turned up in dirt excavated from the site of the present Eielson Building in 1940. It is broadly flaked and secondarily retouched on two edges, and is made of cherty hornfels. Wendell Oswalt found another blade fragment (Pl. XV, B, *b*) just below sod in his house excavation on the southeast slope of Rainey Ridge in 1947. This appears to be part of a knife blade made of a single long flake retouched only at the edges of each face.

A crude flake chopper or scraper of silicified slate, retouched about all of the edge of the convex surface, was found at the base of College Hill, near the campus, in 1947 (Pl. XV, B, *l*).

Some earlier finds near the campus have not been previously reported. In 1939, Magnus Marks, while a student at the university, found a broken blade or point of black chert (Pl. XV, B, *d*) in a field on Ballaine's farm, about one mile north of the university. The same year, Herbert Simpson, another student, found a lightly retouched felsite flake (Pl. XV, B, *f*) in

[8] Nelson, 1935.

Flint artifacts from central Alaska. A: Station 1, Birch Lake. B: *a*, *b*, Station 5, Fish Creek; *c*–*g*, *l*, Station 4, College; *h*, *i*, Station 6, Faith Creek; *j*, Station 7, Canyon Creek; *k*, Station 2, Jarvis Creek; *m*–*o*, Station 3, Nenana Coal Fields.

the same field. Ballaine's farm is near a small lake, which at the present time has no fish, but perhaps had whitefish at a time when the general water level in the valley was somewhat higher.

The specimen turned in by Marks is noteworthy because of its suggestion of the Folsom oblanceolate outline. Unfortunately, we have no indication of how much of the base is missing. The blade is thin, and was made by broad, controlled flaking, followed by careful edge retouch.

STATION 5, FISH CREEK

In 1942, Otto Wm. Geist turned in a planoconvex side scraper of ferro-magnesium basic rock (Pl. XV, B, *a*), recovered from mining operations on Fish Creek, 25 miles north of Fairbanks. No other data are available. The scraper is retouched along both long edges of the convex face.

STATION 6, FAITH CREEK

In 1946, an end scraper of obsidian (Pl. XV, B, *h*), was found by John Altergott in a truck rut on top of a ridge leading to the mining operations at Faith Creek, about 80 miles northeast of Fairbanks. It is the only specimen reported from that area.

STATION 7, CANYON CREEK, FORTY-MILE DISTRICT

In 1939, a side scraper fragment of black chert (Pl. XV, B, *j*), found on top of gravel during mining operations, was sent to the University Museum by Albert O'Shea of Fairbanks. It was perhaps washed out of the muck. The original seems to have been a long scraper with nearly parallel edges. The flaking is similar on opposite faces.

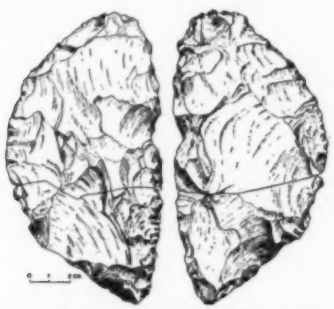

FIG. 20. Semilunar blade from Little Squaw Creek, Chandalar River, Alaska.

STATION 8, LITTLE SQUAW CREEK, CHANDALAR RIVER

The large semilunar blade of black chert shown in Figure 20 was given to the University by Noel Ross, a trader at Beaver. Ross said he in turn secured it from a native, who had found it in gravel during mining operations on Little Squaw Creek, Chandalar River.

SUMMARY

Athapascan camp and village sites, known to living natives through tradition, and recognizable from the surface by outlines of their original excavation, have been reported by Rainey and others. The materials described here do not belong to such sites; we cannot even assume that the people who made them spoke an Athapascan tongue. Without calculable points of time reference we cannot make claims to great antiquity. Some points in favor of considerable age, however, are the following: (1) lack of association with objects of ground and polished slate or organic materials such as bone and antler; (2) presence in or on top of deposits limited in time only by geologic activity immediately post-glacial; (3) certain forms and flaking techniques reminiscent of Folsom and Yuma; and (4) patination of a good number of the artifacts.

The Birch Lake finds include two types which may prove of special value in comparative studies, namely, prepared cores and associated lamellar flakes, and large semilunar blades. The complete core specimen differs in shape from those of the Campus site, but the flakes are like those of other interior sites. The semilunar blade fragments seem to be in the same tradition as that from the Healy River area and that from the Chandalar River. So wide a spread of this type, and the possibility that one specimen comes from Pleistocene gravels, indicates that it may have persisted through many culture phases.

The full significance of these scattered finds must await discovery of large sites which merit systematic excavation. The search should be directed towards permanently frozen layers and rock shelters where materials less perishable than stone are likely to be preserved.

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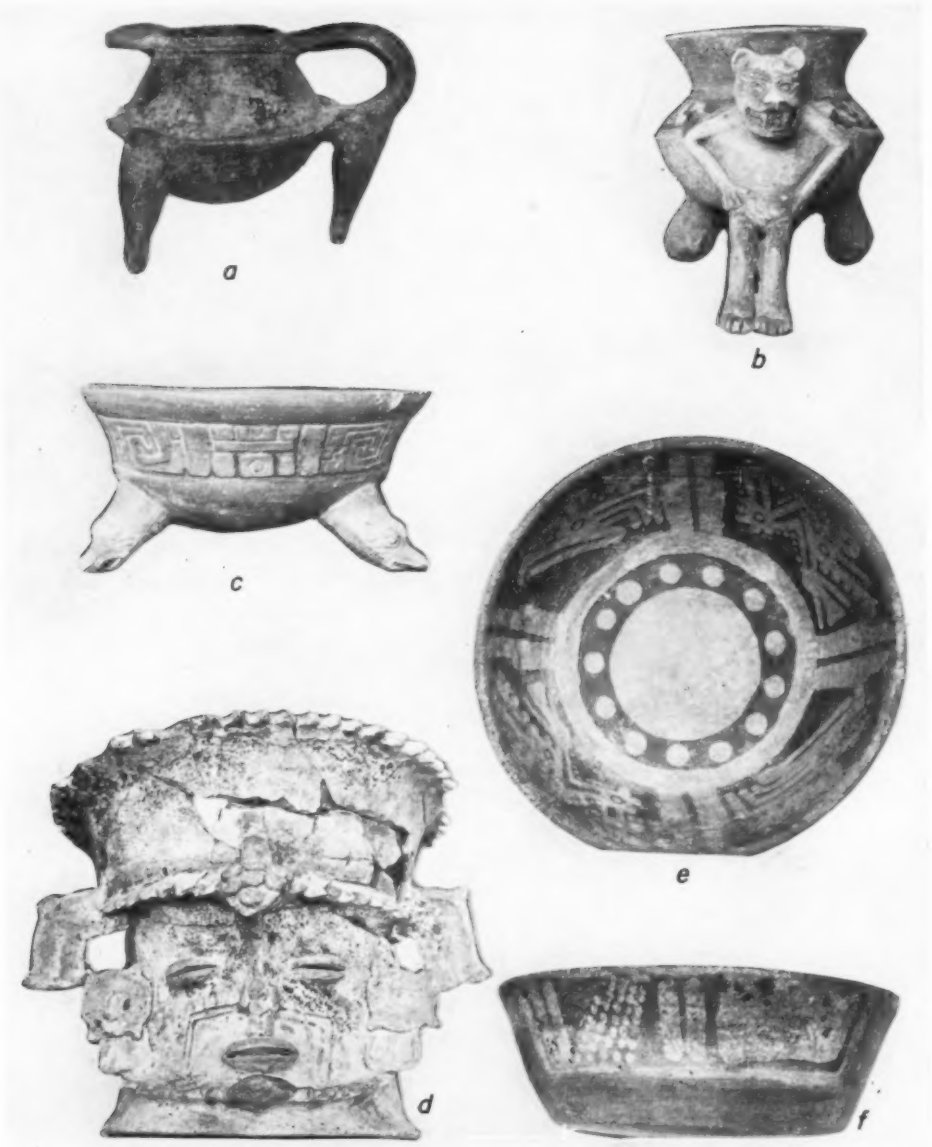
College, Alaska
May, 1948

A

B

Excavations at Zaculeu, Guatemala. A, Structure 6, restored except for roof. B Structure 1, restored; roof of superstructure is conjectural.



Artifacts from Zaculeu, Guatemala: *a*, black tripod pitcher; *b*, tripod globular censer; *c*, tripod bowl, feet with mold-made animal faces; *d*, incensario, coarse ware; *e*, negative painted bowl, interior; *f*, negative painted bowl, exterior. *a*, *d*, *e*, *f*, Early Classic; *b*, *c*, Post Classic.

FACTS AND COMMENTS

PROGRESS AT ZACULEU, GUATEMALA

The excavation and restoration of Zaculeu, now in progress, is a project of the United Fruit Company, under the direction of John M. Dimick. The site of Zaculeu is in the western highlands of Guatemala about 3 kilometers from the town of Huehuetenango. At least one more season's work is planned, but the general outlines of the archaeological picture are already emerging.

The most important contribution which the work at Zaculeu will make to the archaeology of the Highland Maya is in furnishing a continuous record of architecture and pottery from Early Classic times to the Conquest, a period of nearly 1000 years (Pl. XVI). The initial occupation of the site was contemporary with the Early Classic (Tzakol) phase of the lowlands and the Esperanza phase at Kaminaljuyu, to judge from several pieces of pottery found in graves. There was intensive building activity and many burials were incorporated in or dug through the stairways of terraced platforms. Because of the restoration being undertaken as a part of the present program it has not been feasible to strip mounds completely of their later additions. Earlier buildings have been penetrated only with narrow trenches which could be refilled. Graves from the Early Classic and subsequent phases have yielded a great variety of artifacts, although furnishings are less abundant in Late Classic graves. The Post Classic period includes both a Tojil Plumbate pottery horizon and a post-plumbate horizon.

Early Classic. The most significant group of Early Classic artifacts (and the only ones to be treated in detail in this report) come from a large circular tomb which the Indians had excavated into the volcanic ash under the principal structure. The tomb was painted red inside. It was entered by a broad flight of steps leading down from the plaza. On the floor, crushed by the fallen roof, were over 100 pottery vessels in a large variety of shapes. Also there were fragments of 34 pyrite mosaic plaques ("mirrors") similar to those from Kaminaljuyu; a considerable quantity of jade beads and pendants, including some with carved human and parrot faces; several jade earplug flares; a few objects of shell: traces of stuccoed gourd or fiber; and bones representing four or more skeletons. Pottery included the following: cylinder tripods with incised and plano-relief decoration; a tripodal flat-based bowl with small solid feet; tripod pitchers with tall legs tapering toward the base; a shoe-shaped jar; brown ring-stand pitchers (like those of Esperanza phase); polychrome basal-flange ring-stand bowls, of which the larger shows a crocodile-like monster inside; a polychrome cylindrical vase decorated with a band of glyphs and two crayfish-like animals; a shallow bowl with high pedestal base and carved panels; incensarios of coarse ware with high cylindrical pedestals and decoration in appliqué, filleting, and large modeled human faces (Pl. XVII, *d*); coarse ladles with open-ended cylindrical handles on which human features are crudely modeled.

One of the distinctive groups of decorated vessels from this Early Classic tomb consists of twelve pieces with *negative painting*. Eight are shallow flat-based bowls with slightly flaring walls, diameters 19 to 27 cm., heights 6 to 9 cm., decoration on exterior (3), interior (1), or both (4) (Pl. XVII, *e, f*). Three others have tripodal supports: a shallow cylindrical base with slab feet, a basal flange bowl with cylindrical rattle feet, a large shallow bowl with cascabel feet. These three are decorated on the exterior. The last of the twelve is a small basal flange bowl with ring-stand on which the negative painting is similar to that found at Nebaj, the surface poorly polished, and decoration of large random circular spots of red on a black band. On the other eleven vessels the negative painting consists of reserved buff areas surrounded by black. Red has been added to some of the rims and parts of the design areas. The steps in this process seem to have been as follows: (1) there was applied an all-over buff slip (sometimes absent on exterior base). (2) The rim and parts of the wall were painted red, leaving either panels or the entire upper wall buff. (3) A temporary protective material was put over the surface except for the areas which were to be black. This material was put on in broad rounded lines and dots, usually in rows or in clusters of three or four. Simple geometric patterns and highly conventionalized birds were used. (4) A black paint was applied. (5) The temporary coating was removed, revealing the designs in buff or occasionally red surrounded by black. (6) The entire surface was stick- or pebble-polished, leaving conspicuous small striations. Possibly most of this polish was prior to painting, but in certain places the striations cross and blur the borders between black and buff. (7) The firing took place. In some negative painting techniques the heat of firing may have removed the protective material, but if our interpretation is correct that was not the case here. Analysis of the process is made difficult by the extreme fading of the black in many places, probably from oxidation during a poorly controlled firing. Although negative painting occurs elsewhere in Guatemala this style has not been reported previously and may be a local development. No examples have been found among the sherds from the mound fill, which suggests that it was solely a funerary ware. It will be interesting to learn of similar negative painting in other Early Classic sites.

Stucco decoration survived in good condition on several bowls in this tomb. On two it covers negative painted designs on the exterior. Stucco is pastel green, pink, blue-gray, and yellow-buff. Fine black framing lines were sometimes used. Designs are in panels or continuous bands and seem to depict highly conventionalized faces or masks. Stucco was not used on any cylindrical tripods, and on only one bowl does the style even remotely suggest the Teotihuacan style found at Kaminaljuyu.

Cylindrical tripod vases from several individual graves at Zaculeu were decorated with a row of applied knobs around the flange at the base of the wall, a treatment found in the Esperanza phase and Teotihuacan III.

Close parallels exist between Zaculeu and Kaminaljuyu (Esperanza phase): a marble double cup on rectangular base with four small feet; ring-stand pitchers mentioned

above; jade parrot head with cord-sawing along the inner edge of the beak; a slate disk on which the pyrite mosaic consists of a central disk surrounded by curved, radial outer "petals."

Late Classic. Preliminary analysis of the Zaculeu material has concentrated on the Early Classic, but a few comments can be added on the succeeding phases. So far, material identified as Late Classic is not abundant. This may be due to a decline in the amount of grave furnishings, or because of the portions of the site selected for digging, or because in this part of the highlands there was a persistence of traits characteristic of the Early Classic. Sherds in building foundations indicate that occupation was more or less continuous from the first occupation to the Conquest.

Post Classic. Plumbate pottery (of the Tojil phase only) occurs in the form of high-necked globular jars, tripod jars with cascabel feet, toad and bird effigy jars, and shallow bowls. In one instance it is associated with a copper casting of a bird's head which had been painted green, red, and blue and which contained a spherical copper bell. In this grave and in another with plumbate pottery were numerous tiny pieces of turquoise mosaic which may have been mounted with pyrite and jade. Also associated with plumbate pottery were tripod bowls with pointed flaring feet decorated with mold-made animal faces (Pl. XVII, *c*).

Fine orange ware, represented by a single pedestal vase with carved decoration, came from a grave that also contained two tripodal globular censers (Pl. XVII, *b*). Both censers have perforated walls and one leg longer than the other two. On one the leg is a twisted loop and on the other a human figure braced against the vessel with hands on hips and wearing an animal (wolf?) mask. Plumbate pottery was absent in this grave.

Sometime during the final centuries before the Conquest, and after the disappearance of plumbate pottery, a white-on-red style came into use. The white paint is sometimes thick and chalky, sometimes so thin that the red shows through. It is carelessly applied in simple designs which consist of straight lines, meanders, and zigzags fussily ornamented with a profusion of small dots. Series of short parallel lines or ticks were also used. Large solid white panels, connected at the corners by narrow lines, appear on bowl interiors. Shapes include flat-based tripodal bowls with flaring wall, small bowls with incurved rim, and small shallow bowls.

Conquest. No objects of European origin have been found, although Gonzalo de Alvarado besieged the site in 1525. There is evidence from the present excavations that building activities may have been interrupted by the arrival of the Spanish. One of the large mounds (Structure 9) shows no traces of terrace walls on three sides, no superstructure, and on the fourth side only the lowest terrace had been built. This terrace was surfaced with plaster, but no remnants of plaster were found that might have come from higher terraces. The mound is being left in this unfinished state as a dramatic reminder of the sudden cessation of Indian political power and cultural achievements.

Construction. Masonry construction was the rule at Zaculeu, and walls, terraces, floors, and steps were invariably plastered thickly with a strong, brilliant white lime plaster (Pl. XVI). Stones were seldom dressed and include the entire range of locally available materials. They were laid up in adobe mortar. No vaulted masonry roofs have been found, and it is probable that flat beam and mortar roofs were used. There was little stone sculpture, none of it architectural. A few crudely carved small human figures have been found, and metates with the longer leg in the form of an animal head. Small fragments of painted plaster with geometric and floral designs suggest that buildings may have been brightly painted.

Conclusion. Another season of digging and restoration is planned, and much laboratory analysis remains to be done. Nevertheless, it can be concluded that Zaculeu has been a center of ceremonial (and probably political) activities in the Huehuetenango Valley since Early Classic times. Nothing earlier has been found. The material gives the impression of much closer connections with Mexico than with eastern Guatemala or with the Lowland Maya area. The location was probably first selected for building because of the permanent water of the nearby Selegua River, although a few walls and palisades would make it easily defensible. After the initial burst of building activity there seem to have been only minor changes and enlargments of the main pyramids. Small platforms in the plazas, a Mexican trait, are all relatively late additions. When the pottery sequence is more fully worked out, we hope it can be used in conjunction with surface survey materials to aid in better understanding the rise and fall of the Highland Maya cities.

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March, 1948

WHAT IS THE ARCHAIC?

Since its inception by Ritchie[1] the term "The Archaic," or "The Archaic Pattern," has seen considerable usage. However, it appears that the definition or delineation of this pattern, as it exists, is not serviceable. If this be true, there is then an anomalous situation in that: (1) Manifestations which have been classified by Webb and DeJarnette, Webb and Haag, Fairbanks, and Lewis and Kneberg, as components or foci of the Archaic, are thereby correlated at the pattern level. (2) The concept in terms of which they have been so correlated is inaccurate.

Ritchie's most concrete formulations are:

> The long postulated archaic level in New York recently confirmed by intensive work in the Southeast consists of an aggregate of discrete foci, sharing a hunting-fishing-gathering economy. *Its chief characteristics are the absence of horticultural traces, ceramics, and the smoking pipe.*[2] (Italics mine.)

and, in terms of more specific elements:

> Analysis of the archaic level as a whole shows (a) a large variety and numerical abundance of chipped stone types; (b) the lack of all the so-called 'problematical' group of polished stone artifacts, except the bannerstone of several simple forms; (c) a considerable typological range in and a large number of bone tools; (d) the prevalence of copper tools and the total lack of copper ornaments; (e) the general absence of shell artifacts; (f) the complete dearth of pipes; (g) the want of pottery except perhaps in the closing phases; (h) the non-existence of agricultural traces;

[1] Ritchie, 1932.
[2] Ritchie, 1944, p. 321.

and (i) the large variety of burial practices, generally not involving mortuary offerings.[3]

Other statements made by Ritchie add some amount of grave goods in the Frontenac Focus and cremation in the Brewerton and Frontenac foci.[4]

Fairbanks, and more particularly Webb and DeJarnette, have stressed the hunter-fisher-gatherer pattern as the key concept. Webb notes that the Pickwick Basin data indicate a non-agricultural, non-pottery, semi-sedentary group, which was "certainly in a hunter-fisher-collector stage of culture, which, in part, may very well designate their culture pattern."[5] It should be pointed out that here Webb and DeJarnette are confusing culture pattern with the purely taxonomic concept of pattern.

On the following pages of the Pickwick Basin report we find the emphasis placed on collecting as the major activities of the groups involved.[6] On page 319 of that report we read:

> Since the first report of a non-pottery site in New York, other such sites have been investigated. . . . Ritchie has designated this pattern as Archaic, *partly on a basis of stratigraphy and because of the absence in the complex of agriculture and pottery.*[7] (Italics mine.)

and:

> Because it now appears that this non-agricultural, non-pottery, hunter-fisher-collector pattern of culture may have been widespread in Eastern United States in early aboriginal times, the term 'archaic' is here adopted to designate this pattern manifestation in Kentucky and Alabama.[8]

Finally, in another report Webb and Haag state, "Compared with the material from New York, the same cultural level is evident, and this material is hesitatingly assigned to the Archaic pattern."[9] One infers, then, that the criteria for inclusion in the Archaic Pattern, basing the inference on Webb's practice rather than on any specific definition, are:

1. Age. (Note that the term's connotation is expressed.)
2. Hunter-collector-fisher culture pattern.
3. Lack of ceramics.

Fairbanks has compared Stalling's Island, Ward and Kirkland, Indian Knoll, Chiggerville, Lamoka, and Brewerton. Degrees of resemblance were noted. The final statement, rather non-commital, was, "The hunting and collecting economy is similar to that represented by the Archaic and Laurentian Aspects of New York State."[10] Here too then the emphasis, by inference at least, is on the hunter-fisher-collector economy.

The most recent usage of the term "Archaic" has been that of Lewis and Kneberg in "The Archaic Horizon in Western Tennessee."[11] I was unable to find any mention in this report of the criteria used for the inclusion of the Eva Focus in the Archaic Pattern, although certainly age does not seem to have been considered of major importance. There is an indication on page 1 that the hunter-collector culture pattern may also have been their basis for the use of the term.

If the Southeastern sites are to be included in the Archaic Pattern, as has been done by Webb and various associates, Lewis and Kneberg, and Fairbanks, and as was suggested by Ritchie in 1944,[12] then the more or less specific trait list offered by Ritchie does not hold in all respects. Copper ornaments rather than tools are present in Indian Knoll and the Pickwick Basin. Shell artifacts, particularly beads, are present in most of the Southeastern sites.

The other elements in this detailed list of Ritchie's do not in any way serve to distinguish the complex dealt with as the Archaic Pattern from early Woodland levels, and are thus of little value, either singly or in combination, in distinguishing the Archaic as a distinct pattern. We are left, then, with the concept of the Archaic as a complex which is non-ceramic, non-horticultural, old, and has a hunter-fisher-collector culture pattern. This seems, judging from statements already quoted, to be the concept which has generally been used.

This concept appears to me entirely too broad to be of any use. If the Mississippi or Woodland patterns, or for that matter, Anasazi, had been thus broadly defined, these concepts too would be completely useless. For example, if we reverse the combination of elements used as characteristic of the Archaic, we come out with horticulture, ceramics, and recency, which apply to the Mississippi, Woodland, and Anasazi manifestations. These manifestations are certainly not, however, in the same pattern in any normal taxonomic usage of the term. Nor, I am sure, are all of the old, non-horticultural, non-ceramic, hunter-fisher-collector groups whose manifestions in the Eastern United States are known or suspected to exist.

What then? I have already stated that there is a relationship at what is called the pattern level, and all of the authorities cited agree. If this pattern is not the Archaic, what is it?

First we may object to the use of the term Archaic at all. As Griffin has pointed out,[13] the term is a misnomer. As he has stated, the assemblages are not typologically Archaic and the use of the word leads to misconceptions as to age. There seems to be a consensus that the upper dates for these assemblages run around 500 A.D. There does not seem any warrant for the assumption of any very long duration for them. If the term "Archaic" must be used, it should have been reserved for the oldest manifestations in North America, if and when such assemblages are identified.

As I have already indicated, the specific criteria for the Archaic Pattern offered by Ritchie do not serve to distinguish it from early Woodland levels. This is revealing. Equally revealing is the first classification of the Laurentian Aspect as Woodland.[14]

In a recent M.A. thesis at the University of Chicago, working with a detailed trait list, I compared every available site which has been classified as Archaic with every other on a site to site basis. This revealed a network of re-

[3] *Ibid.*, p. 319.
[4] *Ibid.*, p. 320.
[5] Webb and DeJarnette, 1942, p. 318.
[6] *Ibid.*, pp. 318–19.
[7] *Ibid.*, p. 319.
[8] *Ibid.*
[9] Webb and Haag, 1940, p. 109.
[10] Fairbanks, 1942, p. 231.
[11] Lewis and Kneberg, 1947.
[12] Ritchie, 1943, p. 322.
[13] Griffin, 1946, p. 42.
[14] Ritchie, 1932, 1940, p. 97.

lationships fully substantiating the inclusion of them all in a pattern. Comparison of this trait list, with each occurrence indicated, with the statement prepared by the First Conference on the Woodland Pattern,[15] revealed a very high degree of correspondence if ceramics were excluded. There were some variations from the list, but they do not seem of great importance. Rather than reproduce the entire conference list of 26 essential traits here, only the points at which the non-ceramic complex differs will be indicated. First, under 3, *e*:

"Grave goods include chipped stone artifacts, bone and antler implements, ground stone artifacts, animal teeth, or whole bone elements, and incomplete pottery vessels, relatively important in that order."

In the Southeastern sites, shell artifacts are in most instances the commonest form of grave goods. Incomplete pottery vessels we do not have. With some uncertainty as to relative order, we may then take the remainder of the statement as it stands.

Under trait 6, the order given for relative frequency of occurrence of projectile point types is not followed in preceramic levels. However, all the same forms do occur, and the types listed as most important in Woodland are also the most important in non-ceramic manifestations. There is likewise a deviation in order of frequency of knife and scraper types, and the heavy generalized side scraper is apt to be missing.

Finally, under 8*a* and *b*, grooved axes are not present in the Northeastern sites. However, I may point out that they occur in New York State only in the poorly known Coastal aspect. In this, as in other traits, the conference's list, based on entire regions, does not reveal differences as they occur at lower levels.

Of the 26 traits then, we differ in degree on 3 only. In general, it was felt that most, if not all, of the non-ceramic sites had as many of the Woodland traits as the average Woodland site. There were some seeming exceptions, but in every case these sites could be closely related on the basis of other traits, to sites which fitted the Woodland pattern more closely.

In regard to ceramics, it should be pointed out that in many cases Woodland ceramics appear in the closing phases of a manifestation without there being an accompanying change in the non-ceramic inventory. The Brewerton sites are good examples as are, seemingly, the Pickwick Basin sites.

It appears then that the manifestations which have been called the Archaic represent the early phases of the continuum known as Woodland. It is not, however, necessary to classify them in the Woodland Pattern. This depends on the criteria for the establishment of, or inclusion in, a pattern, which is after all a classificatory device, and on the fact that addition of non-ceramic manifestations to a complex whose most useful criterion is ceramics, would confuse things considerably. A compromise might be to group these non-pottery sites under some such term as Pre- or Non-Pottery Woodland. This would keep the groups separated terminologically and at the same time indicate the relationship. In general, I would be inclined to accept the non-pottery section of the trait list offered by the First Conference on the Woodland Pattern as the most useful set of criteria for the delimination of this non-ceramic pattern or section of the Woodland Pattern.

[15] Anonymous, pp. 393–400.

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April, 1948

UPPER MISSISSIPPI AT THE FISHER SITE

A recent paper by George R. Horner, covering work done by Wheaton College at the Fisher site, Will County, Illinois, contains several statements requiring comment.[1] In order to comment on these points it will be necessary to

[1] George R. Horner, "An Upper Mississippi House-Pit from the Fisher Village Site: Further Evidence," *Transactions of the Illinois State Academy of Science*, Vol. 40, pp. 26–29, Urbana, 1947.

outline certain material contained in an unpublished manuscript of the writer.[2]

The well-known Fisher site, consisting of 12 mounds and over 50 house pits, was initially excavated by George Langford.[3] Later work was conducted by several University of Chicago field parties, and a W.P.A. expedition. The site is located on the point of land formed by the Des Plaines and Kankakee rivers as they approach their confluence and unite to form the Illinois. Four cultural horizons can be recognized at the site: (1) long-headed burials without grave goods in the gravel beneath the mounds, (2) three periods of Upper Mississippi occupation, (3) Late Woodland, and (4) Historic. We are only concerned with the Upper Mississippi occupations in the present note.

Six pottery types have been named and described for Upper Mississippian times at this site. Brief summaries of these types will be presented below. Shell-tempered types bear the prefix Fisher and grit-tempered types the prefix Langford.

Fisher Trailed. Shell-tempered, surfaces pinkish tan to dark gray, thin (average 4–5 mm.), soft (2.0–2.5). Exterior surfaces in over half of specimens are malleated with a cord-wrapped paddle; many of the remainder show smoothing over cord malleation, and the supposition is that the paddle was used in a non-decorative manner as part of the manufacturing process. Decoration, trailed and punctated, lies between the rim and a point just below the maximum diameter. The trailed lines are wide and range from shallow to deep. Punctates are usually elongate, having been applied at an angle to the vessel. The depth of decoration, combined with the thin walls, gives a "cameo" effect to the interior in many cases. Decorative motifs include festoons, alternating festoons and arches, chevrons bordered by vertical parallel lines, rows of punctates between lines and bordering lines, punctate centered circles, and others. Lips are frequently notched and strap handles, when present, are decorated. Loop and strap handles, as well as lugs, appear on the type. Vessel form is usually a wide-mouth jar with an expanding orifice. This type is Langford's "antler point" pottery, and it is possible that the decoration was executed with an antler tine.[4]

Langford Trailed. Grit-tempered, brown and tan to orange tan surfaces. Thicker than above (average 5–6 mm.), hardness 2.5–3.0. Surface is malleated with a cord-wrapped paddle in many instances, as in Fisher Trailed. Decoration, trailed and punctated, is similar to Fisher Trailed, but not so elaborately done, and with fewer motifs. Arches, which never occur alone in Fisher Trailed, are here more common than festoons; alternating arches and festoons are not found. Lip notching is less frequent than in Fisher Trailed, and handles and lugs are rare. Vessel form is very similar to Fisher Trailed.

Langford Corded. A companion type to Langford Trailed in which the cord malleated surface is present, but no design is placed over it.

Langford Plain. A plain, smooth type similar in paste and form to Langford Trailed.

Fisher Noded and Langford Noded. Two related types, one shell-tempered, the other grit-tempered. Neither type occurs in quantity. Nodes are punched out around the vessel from the inside.

There are, of course, some unclassified sherds and a few unique ones which do not fit into the types named above. There are also trade sherds of Middle Mississippi affinities, but these are not dealt with in the present note.

The basic stratigraphic information for the Upper Mississippi occupations at the site is derived from the two large mounds. East Mound contained the following physical stratigraphy from bottom to top: undisturbed gravel, topsoil, ash layer, mound fill, black seam (old mound surface?), mound fill to the top of the mound. By checking the plane of origin of graves, wherever possible, zones can be established; three such zones may be defined for Upper Mississippi times, and I have called these periods A, B, and C, with Period A being the earliest. Period A graves have their plane of origin beneath the ash layer, and were actually graves in the ground. The 12 Period A burials positively identified are all accompanied by Fisher Trailed or Fisher Noded vessels. Period B burials have their plane of origin above the ash layer, but beneath the black seam; 15 burials may be placed in this period, and they are accompanied by Langford Trailed, Langford Corded and Langford Noded vessels. Period C burials, only two of which can be definitely placed, have their plane of origin above the black seam, and are accompanied by Langford Plain vessels.

There is also considerable evidence, which cannot be presented here, which would indicate that the house pits may be divided into three groups spacially, corresponding to the three periods defined from the mounds. There has been considerable mixture in the shallow, plowed ground, and a vast number of aboriginal pits and holes of all periods add to the confusion, making the analysis rather complex.

The details on pottery types and stratigraphically defined periods within the Upper Mississippi horizon at the site has been necessary to lay some background for the comments on Horner's paper which follow.

1. While Horner uses the terms Fisher and Langford in referring to his pottery, he does so only as equivalent to the Upper Mississippi temper groups. He does not use the type names which were set up and were available to him before he went into the field. This leads to some confusion in any attempt to relate his work fully to that from other previously worked portions of the site. In the house pit which he excavated he found only "Langford" pottery, and gives us percentages of plain and decorated, but includes what we would call Langford Corded and Langford Plain in his plain category.

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[2] John W. Griffin, *The Upper Mississippi Occupations of the Fisher Site, Will County, Illinois*, unpublished M.A. thesis, University of Chicago, 1946.

[3] George Langford, "The Fisher Mound Group, Successive Aboriginal Occupations near the Mouth of the Illinois River," *American Anthropologist*, n.s., Vol. 29, No. 3, Menasha, 1927. The extensive bibliography on the site is not reproduced in the present note.

[4] Illustrations of the types may be found in Langford, *op. cit.*, and James B. Griffin, *The Fort Ancient Aspect*, Ann Arbor, 1943, as follows.
Fisher Trailed. Langford, Pls. XII, *d–f:* XIII, *a, c, d;* Griffin, Pls. CXXXVI, CXXXVII, and CXXXIX: 1.
Langford Trailed. Griffin, Pl. CXXXVIII: 1–23.
Langford Corded. Langford, Pl. XIII, *f;* Griffin, Pl. CXXXIX: 4–5.
Fisher Noded. Langford, Pl. XIII, *e, upper left.*

2. Horner regards the temporal relation of shell and grit tempering as the central problem of the site, and while he states the correct conclusion that shell tempering preceded grit tempering, his own excavation containing only grit-tempered pottery could not have provided the answer. He does acknowledge earlier data, but the general tone would imply that his excavation had aided in settling this problem.

Deuel did suggest, in a progress report of our work at the site, that there was a possibility of shell-tempering following grit-tempering in House Pit 15,[5] but later analysis revealed mixture, and probably reversed stratigraphy. Nowhere have I stated that "Langford and J. B. Griffin interpreted the material incorrectly."[6] In fact I agree with their general interpretation.

3. Horner reports that Langford and J. B. Griffin say that the Upper Level in the Big Mounds contain both shell- and grit-tempered pottery, with only shell-tempered below. This is inaccurate. The reference is to the Middle Level and the zones within it, and, as noted above, reanalysis has shown the separation of types to be more complete than it formerly appeared. The Upper Level, aside from a very few Period C burials, contains only Late Woodland and Historic material. I do not recall either Langford or Griffin making such a statement.

4. The matter of the Upper Level appears again in the statement that House Pit 15, reported in detail in my manuscript, is quite near the West Mound and apparently contemporaneous with its Upper Level. The pit in question is over 100 feet from the mound, but even were it "quite near" there is nothing to support the proposed relationship. Once again, the Upper Level is Late Woodland and Historic, with a sprinkling of Period C burials, while House Pit 15 most probably belongs to Period B of the Upper Mississippi occupations.

5. Horner recognizes that a northerly group of house pits, one of which he excavated, exists as a unit later than the other house pits. This is undoubtedly true, and the information from Horner's excavation is a welcome addition to our knowledge of Period C. The house form, for example, is very close to that from Pit 15 (Period B), while the ceramics are different, at least proportionately. Horner then proceeds to make a tentative identification of this portion of the site with the Oneota Aspect. Of all of the periods of the Fisher site, Period C is about the least likely to qualify as Oneota, to my mind at least.

The position of the Upper Mississippi occupations of the Fisher site in Midwestern culture history, as I see it, may be summarized as follows. I conceive of the three periods which may be defined as points on a cultural continuum, although perhaps the entire continuum may not be present at this site. There is some evidence for assuming temporary abandonment of the site.

Throughout the three periods there is evidence of Middle Mississippi contact, and Fisher is probably contemporaneous with much of the Spoon River Focus. The picture of change at the site from Period A through Period C is one of increasing shift toward a Woodland-like culture from an Upper Mississippi of definite Middle Mississippi affinity. I would interpret Period A as Upper Mississippi formed by Middle Mississippi influence at the margin of full Middle Mississippi distribution. The culture history of Fisher is, then, something apart from such other Upper Mississippi sequences in Illinois as represented at the Crable site, where definite Oneota influences are noted at the very end of Middle Mississippi times.[7]

Evidently there was a cultural shift in Illinois in late prehistoric times. In much of Illinois, particularly the Illinois Valley, this shift is away from the settled horticulture of Middle Mississippi toward a mixed hunting and horticultural economy exemplified by Oneota, which had previously developed to the west and northwest. In northeastern Illinois, at such sites as Fisher, the shift was from an Upper Mississippi developed marginally with respect to Middle Mississippi and contemporaneous in good part with it, toward a reorientation in the Woodland type of economy.[8] This is, of course, hypothesis, but it seemingly is in keeping with our knowledge of culture growth and change.

JOHN W. GRIFFIN
Gainesville, Florida
July, 1948

[5] Thorne Deuel, "Archaeological Field Work of the Illinois State Museum," *Journal of the Illinois State Archaeological Society*, Vol. 3, No. 1, Champlain, 1940.

[6] Horner, *op. cit.*, p. 28.

[7] Hale G. Smith, *The Crable Site, Fulton County, Illinois*, unpublished M.A. thesis, University of Chicago, 1943.

[8] This hypothesis was developed with Donald E. Wray. A statement of the possible factors influencing this shift will be found in John W. Griffin and Donald E. Wray, "Bison in Illinois Archaeology," *Transactions of the Illinois State Academy of Science*, Vol. 38, pp. 21–26, Urbana, 1945. However, "Upper Mississippi" as used in this paper should be understood to mean Oneota rather than the Fisher type of Upper Mississippi.

UNIQUE ARTIFACT FROM MANITOBA

During the month of May, 1948, Dr. Douglas Leechman of the National Museum, Ottawa, spent some time on the northern Plains. Included in his Manitoba itinerary was a rapid survey of the more important sites in the south-central portion of the province. While on the Lowton site (S. W. Sec. 26, T. 5, R. 16, W. 1st.), one of the party, Dr. R. D. Bird of Brandon, Manitoba, recovered from the surface the curved knife with the deliberately fashioned scraper end illustrated in Figure 21.

FIG. 21. Knife-scraper from the Lowton site, Manitoba. (Catalogue No. 3953.)

The Lowton site is one of the significant occupational

sites in southern Manitoba. The pottery, frequently decorated with twisted cord impressions in a rainbow design, suggests some connection with the village cultures of the upper Missouri. Work in stone is also distinctive, and leaves the impression of being the most spectacular aboriginal material so far found in the province. The area on which this artifact was found was, until recently, heavily wooded with a growth of poplar (*Populus tremuloides*). It was one of three such areas on the site that provided undisturbed deposits for careful excavation. These three groves were removed by a bulldozer in the autumn of 1947. The artifact was found 20 feet west of our Excavation 3, exposed by an archaeologically destructive process that may indicate progress in prairie agriculture.

This cutting and scraping tool is 52 mm. long and 12 mm. wide just above the butt. The material is translucent Knife River flint. The chipping indicates good workmanship; both sides of the knife portion of the blade have been completed with equal care and there is some delicate retouching along these longer cutting edges. The unique part of the artifact is the carefully made scraping end. It is identical with the working edge of the common end scraper. The scraper end is the thickest portion of the blade and is worked only on the abruptly sloping edge. Careful examination of all the working edges indicates considerable use. Its appearance suggests that it may have served its aboriginal owner both as a knife and as an end scraper.

CHRIS VICKERS
Historical Society of Manitoba
Baldur, Manitoba
June, 1948

DIAGONAL FLAKING FROM KOTZEBUE, ALASKA

The illustrated blade fragment (Fig. 22) turned up in a purchased lot of archaeological specimens at Kotzebue, in

FIG. 22. Blade fragment from Kotzebue, Alaska.

1941. It appears to be the tip of a long, thin blade broken clean near the middle. It is diagonally flaked from translucent, smoky chalcedony, a material which shows up occasionally in sites of the Kobuk River region. The Yuma-like flaking, in some cases all the way across the blade leaving each face rounded rather than longitudinally ridged, is not, however, reported from other sites in Alaska.

This object was offered for sale along with various artifacts of types common in our excavations. The Eskimo to whom they belonged said they had been all collected and saved for some time by members of his family. He thought the greater number came from the garden plot back of his house in the center of the village. Nothing further could be learned, as he obviously thought this specimen no more remarkable than other points of flinty material.

J. L. GIDDINGS, JR
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College, Alaska
May, 1948

PROJECTILE POINTS FROM THE KISSIMMEE REGION

In a recent article by John M. Goggin[1] the Kissimmee region of Florida is said to be little known archaeologically

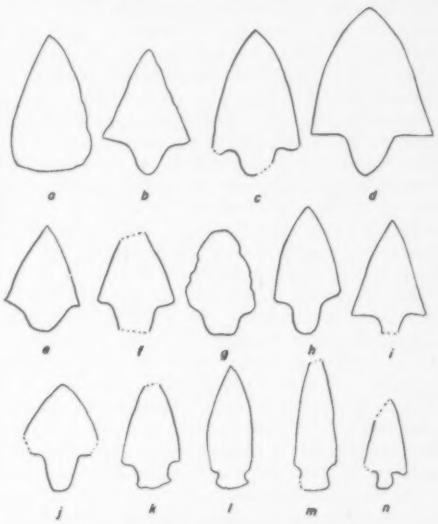

FIG. 23. Projectile points from Lake Tohopekaliga, Florida.

and only a few sherds are mentioned. Although Goggin has made his analysis primarily on the basis of pottery types, he does mention other artifacts in some instances, so that his silence on projectile points in the Kissimmee region may be indicative of meagre or non-existent data.

It is the purpose of this note to call attention to a small collection of projectile points made by Mr. and Mrs. F. O. King at a single site located on the east shore of Lake Tohopekaliga approximately 5 miles southeast of the town of Kissimmee, Osceola County, Florida.[2] Lake Tohopekaliga, it may be noted, forms the northern boundary of the Kissimmee region. According to the Kings, these points were found within a short period of time in 1930; ordinarily the site is inundated but at that time the lake was unusually low. In a small area numerous stone chips and fragmentary points were noticed but only the more complete specimens

[1] Goggin, John M., "A Preliminary Definition of Archaeological Areas and Periods in Florida," AMERICAN ANTIQUITY, Vol. 13, No. 2, 1947.

[2] Lot 10–11, Block 6, Florida Drained Land Company Subdivision.

were kept. No fragments of pottery or bone were found at the site.

Figure 23 presents outline sketches of the fourteen points in the King collection. Points *e*, *f*, *g*, *i*, and *j* are very crudely worked. None would be considered of very fine workmanship. The general term *flint* can be used to describe the material from which all of the projectile points were made. Of these flint artifacts, *k* is made of jasper-chalcedony; *b*,[3] *e*, *f*, *h*, and *j* of jasper; and the rest of chert.

Although it is not the purpose of the present note to make broad comparisons of the points in question with those of other areas, a few pertinent facts may be noted. In the Kissimmee region no projectile points are reported from the recently excavated Goodnow and Skipper sites,[4] and C. B. Moore in reporting reconnaissance at nine mounds around Lake Tohopekaliga mentions only two stone projectile points, "arrowhead of chert" and "arrowhead or knife of chert."[5]

Just north of the Kissimmee region in the central Florida area, Joffre Coe reports that no projectile points were found at the small excavation made by him at Lake Apopka in 1933.[6] From outline sketches of a sample of projectile points from the Adolph Meinecke collection,[7] examples of the contracting stem dart point, similar to *b* and *f*, were found in Orange County, and points of the corner-notched type similar to *i* were found in the Lake Butler region.

To the east, in the Melbourne area, Irving Rouse reports the presence of contracting stem and side- and corner-notched points at South Indian Field as well as neighboring sites.[8] The points illustrated by Moore for the lower St. Johns also show similarities to the King points.[9]

To the west of the Kissimmee region, in the Manatee region, Willey reports the presence of projectile points of chert and chalcedony, noting that they are more common in mounds of the Safety Harbour than of the Weeden Island period. These include stemmed and stemless, large triangular or ovate-triangular, and small stemless triangular points.[10] Although no pictures of the projectile points accompany the article, it is possible, judging from the verbal description, that some typological similarities may exist between them and the King points.

VIRGINIA WATSON
Washington University
St. Louis, Missouri
June, 1948

[3] Harry J. Werner and Y. W. Isachsen of Washington University identified the stone materials. Although *b* at first glance appeared to be made of pitchstone, a type of volcanic glass, microscopic examination demonstrated it to be a jasper-like sedimentary rock.

[4] John W. Griffin and Hale G. Smith, *The Goodnow Mound, Highlands County, Florida*, Tallahassee, 1948.

[5] Clarence B. Moore, "Miscellaneous Investigations in Florida," *Academy of Natural Science*, Vol. 13, Pt. 2, pp. 300–1.

[6] Correspondence, April 12, 1948.

[7] Furnished by the Milwaukee Public Museum, January 6, 1948.

[8] Correspondence, June 16, 1948.

[9] E.g., Clarence B. Moore, "Certain River Mounds of Duval County, Florida," *Journal of the Academy of Natural Sciences of Philadelphia*, Vol. X, pp. 449–502, Fig. 11.

[10] Gordon R. Willey, "Culture Sequence in the Manatee Region of Western Florida," AMERICAN ANTIQUITY, Vol. 13, No. 3, 1948, p. 214.

NOTES ON COLORADO RIVER BASIN ARCHAEOLOGY

A recent article in AMERICAN ANTIQUITY entitled "Symposium on River Valley Archaeology" summarizes the present status of one of our most important and urgent problems in American archaeology today.[1] Additional information concerning this subject, particularly with reference to the progress made in the Colorado River Valley, should be mentioned at this time.

The National Park Service has been concerned with survey and salvage operations in proposed reservoir areas along the Colorado River and its tributaries for many years. Long before final construction work was completed on Hoover (formerly Boulder) Dam in 1935, several C.C.C. archaeological crews were at work under National Park Service direction in the areas to be inundated, particularly along the Virgin and Muddy rivers in southeastern Nevada.[2] In 1937, when the National Park Service, through an agreement with the Bureau of Reclamation, took over the administration of the Lake Mead Recreational Area located along the Colorado River both above and below Hoover Dam, these salvage operations were continued near the head of the lake. In 1940 further investigations were undertaken in the Lake Mead area, emphasis being placed on those ruins which might be covered and destroyed by the still rising waters of the lake. Although portions of two small pueblo ruins were excavated during the early part of the following spring, the sudden rise of the lake soon forced the abandonment of these projects. Shortly after, practicaly all archaeological field and laboratory work was discontinued with the final closing out of the C.C.C. program. However, as time permitted, other ruins were located and surveyed in the western Grand Canyon near the head of Lake Mead, and, in addition, a fruitless search was made for remains of early man in association with the ground sloth in Rampart Cave.[3]

On January 27, 1941, through an agreement between the Bureau of Reclamation and the National Park Service, the latter agency undertook the investigation of the recreational resources, including archaeology, of proposed reservoir areas in the Colorado River basin. As a result of this agreement, in May, 1942, an archaeological reconnaissance was made of the Yampa and Green River canyons in Dinosaur National Monument in northwestern Colorado and northeastern Utah. The purpose of this survey was to determine the number, extent, and scientific importance of all prehistoric and historic ruins located in several proposed reservoir areas along these two rivers. Reports on this survey have been prepared and submitted to the National Park Service, Bureau of Reclamation, and the Smithsonian

[1] AMERICAN ANTIQUITY, Vol. 12, No. 4, pp. 209–25, April, 1947.

[2] M. R. Harrington: "A New Deal in Archeology," *The Masterkey*, Vol. 8, No. 1, pp. 12–14, Los Angeles, 1934; "Progress in Nevada," *The Masterkey*, Vol. 9, No. 6, pp. 189–90, Los Angeles, 1935; and "A Stratified Camp-site near Boulder Dam," *The Masterkey*, Vol. 11, No. 3, pp. 86–9, Los Angeles, 1937.

[3] Gordon C. Baldwin, "Notes on Rampart Cave," *The Masterkey*, Vol. 20, No. 3, pp. 94–6, Los Angeles, 1946.

Institution, and also preliminary papers on certain aspects of the archaeology of the area have been published.[4]

In October and November, 1942, an archaeological survey of the Whitmore Wash and Shivwits Plateau areas in northwestern Arizona was initiated as a part of this study. Fifty-one prehistoric sites were located and surface collections made. Copies of the archaeological report are in the National Park Service files and one preliminary paper on pottery has been published.[5]

During October, 1945, an archaeological survey was made of the Beef Basin-Dark Canyon Plateau areas in southeastern Utah in the proposed Dark Canyon reservoir on the Colorado River. Since the study of the archaeology represented only one phase of this expedition, comparatively little time could be devoted to exploration and collecting. Nevertheless, 86 prehistoric sites were definitely located and surface collections secured from 52 of them. These ruins include cliff dwellings, large open pueblos, circular and rectangular towers, and at least three probable great kivas. From a brief preliminary study of the pottery and architecture it is quite evident that this region was closely linked culturally with the Mesa Verde area to the southeast.

However, the major archaeological undertaking of the National Park Service in the Colorado River Basin has been in the proposed Davis Dam Reservoir extending for 67 miles along the Colorado River below Hoover Dam. During March, April, and May, 1943, an intensive survey was conducted in the areas which eventually would be flooded. One hundred and fifty-five prehistoric and historic sites were located and surface collections made. Since the majority of these sites were those of the so-called Patayan culture, about which comparatively little was known, it was hoped that a number of representative sites could be excavated before the completion of Davis Dam. A preliminary report was prepared and submitted to the National Park Service, Bureau of Reclamation, and the Smithsonian Institution. However, not until the spring of 1947 was the National Park Service able to set aside a small sum which enabled us to commence laboratory analysis of the material collected during the 1943 survey and to begin preliminary trenching at a few selected sites. In October of the same year, through an allotment by the National Park Service, we were able partially to excavate five of the larger Patayan ruins in the area.[6] There is still a considerable amount of work to be done in the Davis Dam area prior to the completion of the dam in late 1949 or early 1950. The National Park Service intends to continue this essential field and laboratory work, if additional funds can be procured, and also to conduct any necessary field studies in other proposed reservoir areas in the Colorado River Basin.

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Lake Mead Recreational Area
National Park Service
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March, 1948

THE TEOTIHUACAN OWL-AND-WEAPON SYMBOL AND ITS ASSOCIATION WITH "SERPENT HEAD X" AT KAMINALJUYU

The excellent and exhaustive study by Drs. Kidder, Jennings, and Shook of the ceramics excavated at Kaminaljuyu contributes considerably to the understanding and interpretation of Teotihuacan symbolism. A group of stuccoed and painted tripods, excavated at Kaminaljuyu, includes seven vessels whose decorative style is Teotihuacanoid, whereas the other four are Mayoid in style. All these tripods are considered to have been made and decorated at the site mentioned. The authors conclude, therefore, that "there were artists in the highlands of Guatemala, capable of rendering accurately the very different symbolism of two distinct cults."[1]

FIG. 24. Painted design on stuccoed, cylindrical tripod with "Foliated Serpent X." Kaminaljuyu, Guatemala. (After Kidder, Jennings, and Shook.)

I shall refer to one of these tripods whose design is in part still enigmatic. It belongs to the Mayoid type of tripod vessels, and I think that analogies between the partly undeciphered design and motifs on material of the Teotihuacan horizon can be suggested. The method of comparing Teotihuacan with Mayoid designs, in order to come to an understanding of one or another, should not be discarded offhand, particularly not in the case of Kaminaljuyu, where strong influences of both cultures are evident. Furthermore, the Esperanza phase at Kaminaljuyu, to which the tripods belong, is considered to have been contemporaneous with Teotihuacan III, where at that period symbolism appears to have been highly developed. This trait continues throughout the following period, to which part of the material herein discussed belongs.

The vessel in question (Fig. 24) shows "on the body twin representations each enriched by what seems to be an oversize supraorbital plate, from which rise six round-

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[4] Frank M. Setzler, "Riding the Yampa," *National Parks Magazine*, Vol. 17, No. 72, pp. 21–6, Washington, 1943; Gordon C. Baldwin, "An Archeological Reconnaissance of the Yampa and Green Rivers," *The Kiva*, Vol. 12, No. 3, pp. 31–6, Tucson, 1947.

[5] Gordon C. Baldwin, "An Occurrence of Jeddito Black-on-Yellow Pottery in Northwestern Arizona North of the Grand Canyon," *The Plateau*, Vol. 17, No. 1, pp. 14–16, Flagstaff, 1944.

[6] A preliminary paper on the results of this survey and excavation program was presented by the writer at the joint meeting of the American Anthropological Association and the Society for American Archaeology at Albuquerque, New Mexico, on December 29, 1947.

[1] Kidder, 1946, p. 228.

ended projections and from whose upper corners spring long stems terminating in leaves."[2] I shall consider in detail this oversize supraorbital plate and the six projections with the long stems terminating in leaves, without taking into consideration the lower part of the motif which has been

FIG. 25. "Serpent X" from mold-made bowl from Rio Hondo Quintana Roo, Mexico. (After Kidder, Jennings, and Shook.)

amply explained by the authors to be a serpent's head in profile ("Serpent X").

To advance my hypothesis of the meaning of the upper part of the motif, I suggest that it could have been taken from what will be called the owl-and-weapon symbol, as will be shown.

Before dealing with the Teotihuacan material, I shall refer to a related motif, also mentioned by the authors in this same connection (Fig. 25). It appears on a mold-made bowl found by Gann in Quintana Roo. The serpent heads "are also very ornate and carry the same six superior projections which, however, are flanked by flowers, instead of leaves. A fish (not shown in our reproduction) nibbles at each flower . . . there is surely a connection of some sort between the serpent, often represented by its X-variant, and flowers or leaves. And, as is well known, there is intimate relationship between floral motifs and the fish."[2] Attention is drawn to the fact that the serpent's jaw is fleshless, thus indicating a death symbol. Continuing my hypothesis, in taking the projections for parts of an owl's body, namely the tail feathers, the association of two death symbols—fleshless jaw and owl, a bird always related to death—seems reasonable.

I shall now deal with the representations of owls as appear frequently on Teotihuacan ceramics and frescoes. Figure 26 shows an owl covering the body of an anthropomorphic figurine of which, unfortunately, head, arms, and

FIG. 26. Mold-made figurine from Santiago Ahuixotla, D. F., Mexico. Half size. (Collection of the author.)

[2] *Op. cit.*, p. 226, Figs. 173, *a*, 204, *d*.

legs are missing. This piece was mold-made. The owl's features are clearly distinguishable. The bird appears flattened, showing the face looking forward beneath the necklace of the figurine, partly covering the former. The legs are stretched out to right and left; the down is indicated below the long feathers. Between the claws pend five tail feathers upon which a curved design illustrates the posterior portion of the bird in a conventional outline, which is frequently used in bird representations. This same detail is shown on a plano-relief vessel described by Linné.[3] However, I cannot follow his suggestion that it might be related to the Maya sign of the planet Venus. On both right and left sides of our specimen are the wings of the owl. Two crossed arrows or spears, points showing downward, cover the owl's body. The shafts are decorated with balls of a porous substance, probably feathers. Superimposed is a shield covering the entire center of the motif, in the middle of which and surrounded by an oval frame, is an extended human hand with a bracelet of greenstone beads. Enciso[4] depicts an almost identical representation on a seal.

An owl's head as breast ornament appears on a Zapotec funerary urn,[5] and these heads are often used as ornament on assymetrical clay figurines from Monte Alban.

The crossed arrows motif is known from sculptures at Tajin and Chichen Itzá[6] and slabs with similar designs have recently been excavated at Tula.

The same combination—owl, spears, and hand with

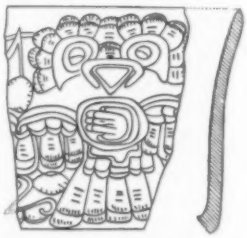

FIG. 27. Fragment of red incised cylindrical bowl, from Santiago Ahuixotla, D. F. Half size. (Collection of the author.)

shield—is incised on a fragment of a red cylindrical bowl (Fig. 27). The point or blade of the spear is incompletely visible on the lower left, while the shaft of the other spear is partly seen on the upper left. Again the tail feathers are clearly indicated, as well as the tail itself. The hand is shown in a shield, this time extending in the opposite direction, and placed under the owl's beak. It appears that there are two rows of tail feathers, as is also hinted on the Kaminaljuyu tripod, where the left feather is superimposed over another.

The frescoes at Tepantitla show a similar composition (Fig. 28). The owl in this case is showing her face upside

[3] Linné, 1934, p. 60, Fig. 26, A.
[4] Enciso, 1947, p. 150; compare also p. 86, Fig. 1.
[5] Linné, 1938, p. 136, Pl. 19.
[6] Spinden, 1933, Fig. 2.

down. It gives rather the impression that the bird is pressed against the breast of the Tlaloc figure by means of the spears he carries in his hand. The latter are decorated in the same fashion as in Figure 26. Below the spears appear the owl's tail and the tail feathers in the usual way. It is not improbable that the owl here is depicted as a breast ornament attached to the greenstone head necklace.

Finally, reference is made to a fragment of a cylindrical, plano-relief decorated tripod which also depicts the crossed arrow-hand-and-shield motif (Fig. 29). The design is a composition of various symbolic elements. In the center is a feather-decorated shield with a hand. An animal's head consisting of tiger jaws and a feather crest is placed on the left side. A huge droplet, or rather a stream of water, emerges from the mouth. Unfortunately, this detail is not preserved well enough to allow a definite determination. But representations of droplets emerging from monstrous animals are often found in plano-relief decorations.[7] Above the shield and to its right are two different wing-like elements, which are representations of butterfly wings.[8] The shaft or upper end of the spear, decorated with feathers and feather balls, is elaborately depicted between the two

FIG. 28. Detail from a fresco wall painting at Tepantitla (Teotihuacan), Mexico.

wings, and the point or blade of the second spear, also embellished with a feather ball, emerges from behind the shield to the bottom on the right. Because of lack of space, the blade is curved. The hand inside the shield is decorated with a bracelet of greenstone beads and is depicted in the typical, glove-like shape of the plano-relief decorative style. It seems that the artist intended to indicate that the hand actually holds both shafts of the spears, judging from the two black lines projecting upwards and downwards from the fingers. On both sides of the composition are symbols which resemble motifs described by Seler as mountains or clouds.[9]

The examples shown suffice to point out that the Teotihuacanos had a certain conception which they expressed by means of a symbol in which the owl is associated with weapons (hand holding shield and spears). The Maya and the Aztecs considered the owl as a representative of the night, of darkness, and as a symbol of death. The owl was related to the Moan bird, who, in turn, belongs to the death god as his symbol and attendant. Probably the owl had a similar meaning to the Teotihuacanos. If this assumption is correct, the above described emblem would combine the ideologic expression of war and death.

Keeping in mind the shape of the owl's tail and tail feathers and the spears as they occur on the Teotihuacan examples, their similarity with the details of the motif on the Kaminaljuyu tripod (Fig. 24) becomes interesting. The position of the design is inverted (upside down). The over-

FIG. 29. Fragment of a plano-relief decorated cylindrical tripod. ½ size. (Collection of H. Neys.)

size supraorbital plate, described by Kidder, can be compared with the shield. The trilobal element above the shield has marked resemblance to the bird's tail (this element is repeated inside the shield). The six round-ended projections show that they are arranged one overlapping the next, as bird's feathers always are. To conclude that the four stems with leaves stand for spears is probable but remains hazardous. The blades of the crossed arrows at Tajin, however, have the same leaf-like shape as on the Kaminaljuyu vessel. On the other Mayoid example from Quintana Roo (Fig. 25) stems or spears are not represented, yet the "flowers" flanking the tail feathers resemble the feather balls which decorate the spears in the Teotihuacan designs (compare Figs. 27 and 29). The association of the owl's tail as a representative, or rather, as an abbreviation of the owl itself as a death symbol, together with the fleshless jaw of the serpent, is understandable. For the presence of the fish nibbling at the flowers or feather balls, no explanation can be given. There also remains an interpretation of the interior design of the shield, for which I have no analogies. In all of the Teotihuacan examples shown, a hand is depicted inside the shield.

If my hypothesis is correct, the design of Figure 24 would thus combine two symbols: that of a serpent, represented by a serpent's head X, and the owl-and-weapon symbol, depicted upside down, consisting, in this case, of the owl's tail feathers, the owl's tail (appearing twice), a shield, and possibly crossed spears. Both symbols—the serpent X and the owl-and-weapon symbol—are incompletely depicted, but their essential parts are sufficiently represented to convey the idea. As is the case with the representations of Serpent X, they differ in detail and in the way they are worked into the decoration, yet they are alike in possessing certain common elements, most or all of which are present in every rendering. The owl-and-weapon symbol must have been known to the artist who painted the tripod in all its details. Limitation in space forced him to abbreviate the design he meant to paint. It is not improbable that he grouped his designs, beginning with the shield as the

[7] Cf. Linné, 1934, p. 60, Fig. 26, A; and Winning, 1947.

[8] Cf. Seler, 1915, p. 526, Fig. 179; and Caso, 1942, p. 132; further, Kidder, 1946, p. 230, Fig. 100, *d* and p. 231, Fig. 101, *b*.

[9] Seler, 1915, p. 500, Figs. 109 and 178.

dominating center motif, replacing the owl's head by Serpent X for some unknown reason. The fact that the owl-and-weapon symbol stands upside down is not unusual, since, in Teotihuacan art, elements are frequently encountered in an inverted position (cf. the owl in Fig. 28).

The possibility must also be admitted that the artist at Kaminaljuyu may have had a completely different idea in mind when he began to paint the tripod. If such were the case, he would justifiably feel offended if he knew we had misinterpreted or distorted the real intent of his art expression. However, it is hoped that the Teotihuacanos at least have been done justice and that their designs have received the correct interpretation.

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May, 1948

BOOK REVIEWS

The Ancient Maya. SYLVANUS GRISWOLD MORLEY. Palo Alto: the Stanford University Press, 1946. 520 pages, 95 plates, 57 figures. $10.00.

Dr. Morley, dean of Maya epigraphers, has produced a volume which is likely to remain for a long time the most widely consulted work on the Maya. The book is excellently illustrated, lucidly written, and is by far the best single source for anyone who wishes to know something of the prehistoric Maya culture. *The Ancient Maya* is a heartening demonstration that a specialist can write entertainingly for the average reader. This ability stems from the character of the author, whose charm and enthusiasm are famed among all who know him.

The subject matter is proportioned as follows: (1) A description of the country and of the people, 34 pages. (2) Maya history, 98 pages. (3) Maya manners, customs, material culture, 303 pages. (4) An appraisal of the Maya civilization, 4 pages. Following the text are two short appendices and a reading list of about 400 titles classified under 14 subject headings, not referenced to the text. An index completes the volume.

The geographic summary is well given; it concludes with a statement as to the "unique geographic isolation" of the Maya area and its importance in allowing Maya civilization to develop "practically free from all alien influences." The chapter on the Maya people describes their linguistic subdivisions and gives vital statistics which are interpolated with somewhat over-sympathetic accounts of their health and appearance. A section titled "Psychological Characteristics of the Yucatan Maya" gives a lively, anecdotal account of the people based on Morley's many years in Yucatan.

Archaeologists reading this book will find their major interest in the chapters on the pre-Conquest history of the Maya. The reconstruction here given by Morley contains little new material and differs materially on several points from the views of other workers in the Middle American area. A discussion of some of these points of disagreement is given in the concluding part of this review.

The larger part of *The Ancient Maya* consists of chapters on various aspects of Maya culture. More than half of this section deals with social organization and customs, subsistence, ecology, writing, calendrics, and astronomy—the non-material aspects of Maya culture. The remainder of the section deals with architecture and the other arts and crafts.

Non-material culture looms larger in this description than in most reports on prehistoric peoples. This fortunate situation does credit to Dr. Morley's breadth of viewpoint and interest. He is aided by the fact that we know a surprising amount about the Maya considering the early date at which they reached their cultural peak. Although the Maya high culture was nearly dead when the first Spaniards encountered it about 1520, the Maya were a literate people and had a superb representational art; the early Spanish accounts are detailed, notably that of Landa which has been so admirably and exhaustively annotated by Dr. Tozzer.[1] Also a considerable portion of aboriginal folk culture still underlies the European veneer. A balanced viewpoint is essential for properly relating materials so varied in viewpoint and emphasis. Dr. Morley's sure grasp of these varied sources has allowed him to write a singularly clear and coherent account of the various facets of Maya life. The illustrative material has been carefully chosen and reproduced and, as throughout the work, tables clarify the text.

The lack of bibliographic references here, as elsewhere, in the reviewer's opinion decreases the usefulness of the text. The bibliography given includes, for example, some 150 references listed alphabetically by author under the general heading "Archaeology," of which 61 are starred as recommended for the general reader. The list, while incomplete, is still too long for complete study, and the student unfamiliar with the literature will have difficulty in selecting what he wants from it. One solution might have been a series of reading notes organized by chapter. Vaillant's *Aztecs of Mexico*[2] includes a very useful list of this sort.

The historical account of the Maya until the Conquest is contained in Chapters III, IV, and V. To the archaeologist this is the heart of the book; the other sections all depend upon it. Therefore, the following is a detailed discussion.

The "Maya Civilization" is defined at the outset as having as its two principal material manifestations

> a unique hieroglyphic writing and chronology and so far as North America is concerned, an also equally unique stone architecture, involving the use of corbeled-stone roof vaults. Whenever these two cultural traits are found together in the Middle American region . . . and in this region they practically never occur separately—there the Maya civilization, as defined here, flourished. Conversely, wherever neither of these traits is found, even though the language spoken by the local Indians is one or other of the several Maya dialects, such regions are not here considered as having formed parts of the Maya culture area.

Corollary to the above definition Morley dismisses the Maya-speaking Huasteca of Vera Cruz as having become separated from the main Maya speaking group before the Maya civilization was evolved. He nearly as summarily dismisses the disputed early dates from the Olmec area on the basis of uncertain dating of the Tres Zapotes stela, on the Mexican style of the El Baul stela, and on the "distinctly non-Mayan" style of the Tuxtla Statuette. However these allegedly early Olmec inscriptions be finally dated, it does not seem reasonable to disqualify them as not belonging to a style which, if the Olmec dates have been correctly read, is first seen in the Peten hundreds of years later. Having thus a little too neatly disposed of the possibility that our earliest calendric evidence comes from the southwest corner of the Gulf of Mexico some 500 air miles from the center of the Maya area, Morley goes further. He

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[1] A. M. Tozzer, "Landa's Relación de las Cosas de Yucatan," *Papers of the Peabody Museum of American Archaeology and Ethnology*, Vol. 18, Cambridge, 1941.

[2] George C. Vaillant, *Aztecs of Mexico, Origin, Rise and Fall of the Aztec Nation*, Garden City, N. Y., 1941.

states that Maya civilization must have begun where the earliest certain evidence of hieroglyphic writing and of the corbel vault are found "in the lowlands of northern central Peten, Guatemala, either at or in the immediate vicinity of the great ruined cities of Tikal and Uaxactun. . . . " Chapter V concludes with the even more far reaching claim that "the antecedents of the Maya civilization had their origin . . . in the Tikal-Uaxactun region."

This delimitation of the search for Maya origins to the area where the earliest traits identifiable with the full-blown Maya theocracy are found is restrictive if a complete understanding of the origins of Maya culture is sought. There is considerable evidence that Maya culture differentiated out of an early, relatively homogeneous Middle American substratum more or less contemporaneously with other high cultures in the Mexican and Guatemalan highlands. There is also much evidence that these high cultures, although each had its distinctive flavor, did not evolve completely or nearly completely isolated from each other.[3]

Certainly Maya hieroglyphic writing, chronology, and corbel vaulted masonry are our best definitive traits for the developed culture. The assumption that the two were invented in the immediate vicinity of Uaxactun and Tikal is questioned by the Olmec dates on one hand and by evidence for considerable early vaulted masonry in Yucatan on the other. Masonry is dependent on the presence of native stone, lacking at many Olmec sites. If the assumption from internal evidence is correct that the calendar originated about 700 years before the first Maya stone stelae were carved, calendric records on perishable material may have begun anywhere within a large area. Although these questions of locality or origin are at present unsolved and may remain so, the importance of the Maya culture is not lessened by the possibility of foreign influences or origins.

Dr. Morley is eminently qualified for the exposition of the Maya dated inscriptions; he has read most of them. Chapter IV, devoted to the history of the Maya Old Empire, is based on the distribution through time and space of initial series inscriptions which, as Morley says, "by themselves alone provide a thoroughly reliable chronological framework for Old Empire history." The monuments have also allowed Morley to make general estimates of populations and of the spread of the Maya culture, according to his definition given above, while stylistic development in stelae carving has allowed the definition of relative cultural advancement along artistic and technical lines. The chapter is well written and admirably illustrated by charts summarizing the dates and locations of all dated stelae. The stelae indubitably form the best single tool for the elucidation of the period documented by them in the Peten area. Into the framework supplied by the stela dates are fitted architecture and ceramics to give a rounded picture. The descriptive material is limited to the area where Initial Series dates carved on stelae are found. Yucatan, for example, where corbel vaults of this period appear but carved dates are rare, is omitted save for a listing and discussion of the dates themselves. The Yucatan inscriptions are considered by Morley as indicative of Maya colonization into a foreign area.

The chronological framework of Chapter V, devoted to a history of the New Empire, is based upon Morley's interpretation of records written in post-conquest times, the main sources being Landa, Lizana, and the Books of Chilam Balam. Initial Series dates and certain other archaeological findings have been fitted to this documentary reconstruction. The chapter departs slightly from *The Maya New Empire*, 1938,[4] to allow the inclusion of the early dated lintel found at Oxkintok in 1939. Morley divides the New Empire into three periods beginning with the Puuc Period—the so-called League of Mayapan (987–1194 A.D.). Next comes the Mexican Period or the Ascendancy of Mayapan (1194–1441), and finally the Period of Disintegration (1441–1697).

It is impossible to fit these first two periods to the ceramic sequences excavated in Northern Yucatan and outlined in Carnegie Institution Yearbooks for 1940–43. Excavation has not supported Dr. Morley's documentary reconstruction. A series of ceramic trenches dug in 1942 which well sampled the relatively small site of Mayapan produced no deposits dating from either the Puuc Period or the Mexican Period, the ceramics of which are thoroughly known from previous extensive excavations at Chichen Itzá and some six sites in the Puuc area. Approximately 88 per cent of the 19,016 sherds from Mayapan belong to a period definitely proved to postdate both of Morley's first two periods; 3 per cent belong to the Mexican and Puuc periods; nearly all the remainder belong to a period intermediate in time between the Mexican Period and the predominant Mayapan Period. The fall of Mayapan at about 1441 is perhaps the best established of the chronicled dates; thus the main Mayapan occupation must precede Morley's last period. The ceramics document two periods following the Chichen Itzá Mexican and preceding Morley's Period of Disintegration, and the later of the two is the period predominant at the site of Mayapan. The major so-called Mexican Period buildings at Chichen Itzá were built before the construction of the buildings of Mayapan, and there is strong if negative evidence that no architectural activity was undertaken at Chichen Itzá during the time of the major Mayapan occupation. Furthermore there is no certain evidence of building activities at Chichen Itzá during the ceramic period just preceding the major Mayapan occupation.

Dr. Morley's first two periods, the Puuc Period and the Mexican Period, have been described archaeologically and generally accepted for many years. In equating these periods with phases of the Mayapan confederacy Dr. Morley is fitting his reconstruction of the documents to the earlier known part of the archaeological picture. He is governed in this reconstruction by a belief in the 11.16.0.0.0. correlation and a conviction that the Yucatan sequence does not overlap chronologically with the Initial Series Period.

The Mayapan excavations make it evident that Dr. Morley has telescoped his periods, that a Mayapan Period

[3] A. V. Kidder, Jesse D. Jennings, and Edwin M. Shook. "Excavations at Kaminaljuju, Guatemala," *Publications, Carnegie Institution of Washington*, No. 561, Washington, 1946, pp. 1–5, 241–260.

[4] S. G. Morley, *The Maya New Empire*, 1938.

of at least 200 years, 500 years if the documentary sources be accepted, must be inserted between his Mexican Period and his Period of Disintegration. The dates of the Puuc and Mexican periods must accordingly be moved earlier to accommodate the Mayapan occupation.

If the 11.16.0.0.0. correlation and the period lengths given by Morley be retained, the Puuc occupation must considerably overlap the Initial Series Period. Such an overlap agrees well with Yucatan ceramic, architectural, and epigraphic data, and the longer Yucatan sequence also fits the Mexican chronologies which tie so closely to the Mexican Chichen Period.[5]

This longer Yucatan chronology is not a new idea, and fortunately does no violence to the chronicles. Ralph Roys in 1933 pointed out that the political power of Chichen Itzá must have ended by the twelfth century according to the chronicles.[6] In 1937 Eric Thompson published a reading of the Yucatan dates corresponding to the longer chronology with an Initial Series Period overlap, and in 1945 published a survey of Yucatan history which likewise conforms in all major points to the sequence outlined above.[7] The stratigraphic sequence at Mayapan firmly establishes Roys' and Thompson's earlier placement of the Mexican Chichen Period, and the site of Mayapan archaeologically documents the time-span between Morley's Mexican Period and his Period of Disintegration.

A further thesis in Dr. Morley's reconstruction which seems difficult to reconcile with the archaeology of Yucatan is the colonizing of Northern Yucatan by the Maya at some date near the end of the Old Empire. This long accepted view is based on the chronicles which describe, as do so many Old and New World stories, a series of migrations of the founding fathers culminating in the establishment of the present order. This story was early reinforced by the reading of a sequence of Initial Series Maya dates in the Peten area and the establishment of later dating for the famous ruins of Northern Yucatan. The populational vacuum left in Northern Yucatan during the early periods has been filled by hypothesizing a simple agricultural people whom presumably the first Mayas culturally if not physically overwhelmed, bringing Maya civilization which flowered into the Northern Classic periods. This story still lives in *The Ancient Maya* in the terms Old Empire and New Empire, Greater and Lesser Descent, and in the direct chronological succession rather than overlap of the central and northern Maya culture sequences.

The history of Northern Yucatan during the time covered by the Old Empire and the preceding periods in the Peten no longer needs to be hypothesized; there is considerable evidence that the sporadic occurrence of Initial Series dates in Yucatan is a poor measure of the local cultural advancement.[8] Massive stucco-covered substructures of the general type found in the pre-stela period of Uaxactun certainly occur in Yucatan and are likely numerous, concealed by the debris of the heavy, late occupation. The majority of the archaeological sites tested ceramically have produced deposits, often heavy, which show marked similarity with pre-stela Peten pottery. One deposit has produced several thousand sherds lying stratigraphically beneath Chicanel-Mamon-like (pre-stela) pottery, likely the earliest stratified pottery of the Maya area. There is also evidence for a sequence of corbel vaulted masonry architecture, documented sketchily at present but probably demonstrable at many sites, also obscured by later occupation. The Yucatan ceramics of Old Empire date document a stable local culture divergent from that of the Peten, showing only a fraction of a per cent of Peten trade ware and little local copying of the southern pottery. During the latest third of the Old Empire period when, according to Morley, colonization from the south must have most strongly affected Yucatan, even this slight evidence of ceramic trade disappears. Although few Initial Series dates have been found in Yucatan, numerous uncarved stone stelae occur on some of the earlier sites. Perhaps the inhabitants recorded their calendrics in the stucco and paint which were so plentifully used to face their buildings.

The evidence all points to an indigenous cultural development in Northern Yucatan more or less parallel to that of the Peten, but certainly not entirely provincial thereto. The New Empire culture of Northern Yucatan is better explained as a local cultural development than as the blaze from a torch of Maya culture borne from the collapsing southern ruins by a group of survivors who colonized and ruled the north.

The archaeological findings described above are known to Dr. Morley, who has given constant interest and encouragement to their development. Many of these archaeological results are described in the text of *The Ancient Maya*. The interpretation of material which has resulted in the wide differences in chronology discussed above can largely be ascribed to Dr. Morley's use of Initial Series dates and documentary sources as nearly exclusive bases for chronology, giving them, in the opinion of the reviewer, disproportionate weight in comparison to the evidence from excavated cultural material.

Perhaps a misleadingly long part of this review has been spent in the discussion of disagreements. The importance of these disagreements in Maya history and chronology is great to the working archaeologist; they make fundamental differences in the story he tells. For this reason it has perhaps been worth while to discuss these contrasted historical reconstructions here for the consideration of those working in or teaching Maya archaeology. The descriptive material which constitutes three-quarters of the volume is entirely admirable and calls for unstinted praise.

The great value of *The Ancient Maya* remains even to the most argumentative objector to Dr. Morley's chronology. This book will interest many in the Maya and it is upon

[5] J. E. S. Thompson, "A Coordination of the History of Chichen Itzá with Ceramic Sequences in Central Mexico," *Revista Mexicana de Estudio Anthropológicos*, vol. 5, pp. 97–111, Mexico, 1941.

[6] Ralph Roys, "The Book of Chilam Balam of Chumayel," *Publications, Carnegie Institution of Washington*, No. 438, Washington, 1933, pp. 177–9.

[7] J. E. S. Thompson, "A Survey of the Northern Maya Area," AMERICAN ANTIQUITY, Vol. 11, No. 1, pp. 2–24, 1945.

[8] "Annual Report of the Chairman of the Division of Historical Research," *Year Books, Carnegie Institution of Washington*, Nos. 40–43. Washington, 1941–44.

such interest that work in the Maya area depends. It presents in a form available to the public an entertaining, comprehensive, and beautifully illustrated account of a remarkable culture.

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The Artifacts of Uaxactun, Guatemala. A. V. KIDDER. Publications, Carnegie Institution of Washington, No. 576. Washington, 1947. 76 pages, 87 figures.

Uaxactun artifacts, other than pottery vessels and clay figurines, are the subject of this report. The materials dealt with were found in the Maya site of Uaxactun, Guatemala during excavations conducted by A. L. Smith, R. E. Smith, and E. M. Shook between the years 1930 and 1937.[1] During that time most of the work was done in Groups A, B, and C in which remains almost exclusively assignable to the Tzakol and Tepeu horizons were recovered. Dr. Kidder's material differs from that recorded by the Ricketsons in that theirs came, for the most part, from Group E and dates from the earlier Mamom and Chicanel phases.[2] Also, Dr. Kidder's report deals with artifacts from a large number of graves containing lavish offerings which were encountered in Groups A, B, and C, while the Ricketsons uncovered but few poorly stocked graves in Group E.

In spite of the great amount of work that was done at Uaxactun, the total number of non-ceramic utilitarian artifacts was very small, a condition that also has been borne out at all other Lowland Maya sites that have been investigated. Dr. Kidder concludes that the Maya actually used relatively few chipped and ground stone tools and tools of bone, their place presumably having often been taken by implements of the extremely hard wood so abundant in the lowlands. The collection of artifacts, besides being small, is rather unsatisfactory from the point of view of technological development in that the majority of the tomb specimens are of a single phase—Tzakol—and the greater part of the utilitarian objects are from superficial deposits laid down in very late times. This fact is noted by Dr. Kidder.

Objects of stone are classified by separating utilitarian implements from ceremonial objects. Next, specimens are segregated on the basis of the type of stone employed in their manufacture. This seemed necessary at Uaxactun because in the utilitarian category coarse local flints were used only for certain sorts of tools such as choppers, pecking tools, drills, and scrapers; finer, perhaps imported, flints were employed for stemmed and unstemmed projectile points or knives; and the surely imported obsidian was fashioned into stemmed projectile points or knives, "thumbnail" scrapers, and flake-blades. Projectile points and knives are rare, and no strongly standardized forms appear. Arrowheads are absent, as are well-made drills; scrapers are uncommon and also unstandardized.

Ceremonial chipped stone objects include eccentric flints made from local stone and eccentric forms and incised flakes of imported obsidian. Eccentric flints are more crudely flaked and of simpler forms than those from other Maya sites. Dr. Kidder believes that the diversity of raw materials should be emphasized not only because of the differences in form of the finished product, but also because problems of custom and trade are involved.

In the subclassification of the above major categories specific function, form, and type of chipping are taken into account.

Ground stone objects, aside from utilitarian manos and metates and ornamental jades, are also scantily represented. A very few celts or bark beaters and mortars and pestles are the principal representatives of this class of material.

The collection of bone artifacts is not extensive. Several factors are pointed out in discussing this point. First, the poverty to some extent may be due to the perishability of bone under tropical conditions; second, there may have been a scarcity of game in a thickly inhabited region—but the forest must have supported many animals and birds; and third, the abundance of extremely hard woods in the Peten could have served as effectively as bone for awls, scrapers, flakers, etc. Mammal, bird, and human bones were utilized for utilitarian purposes.

Almost all specimens of shell were ornamental or ceremonial objects from graves and caches. No surely utilitarian implements were found. The majority of species represented were from the Atlantic Ocean; however, there were Pacific Ocean and fresh water species in the collection.

Objects of clay considered in this report include spindle whorls, worked potsherds, and modeled objects such as pendants and beads.

Only a few remnants of perishable materials were recovered, this despite the fact that sculpture in stone and clay, wall and vase paintings, and the three surviving codices all testify to the extreme richness of the prehistoric culture in textiles, feather work, and various ceremonial paraphernalia. One perfectly preserved specimen, a bow, was found on the floor of a room under 2.5 m. of fallen masonry. The finder, A. L. Smith, believes that it must have been left in the building by some wandering hunter long after the abandonment of Uaxactun. Bits of cordage, organic substances, imprints of matting, and textile impressions furnished meager additional evidence of perishable materials.

Although it has been shown that metal was known to neighboring peoples well before the abandonment of Uaxactun, no metal has come to light at Uaxactun or elsewhere in the Peten.

Utilitarian implements show no very great changes at Uaxactun from beginning to end. Dr. Kidder has the impression that as far as common everyday tools and weapons are concerned a rather simple pattern was established early, and was held to with little modification throughout the life of the city. It is also pointed out that the full archaeological value of the material that came to light at Uaxactun cannot be realized until much fuller information is available as to

[1] A. L. Smith, "Structure A-XVIII at Uaxactun," *Publications, Carnegie Institution of Washington*, No. 483; *Contribution*, No. 20, Washington, 1937. R. E. Smith, "A Study of Structure A-I Complex at Uaxactun, Peten, Guatemala," *Publications, Carnegie Institution of Washington*, No. 456; *Contribution*, No. 19, Washington, 1937.

[2] O. G. Ricketson, Jr. and E. B. Ricketson, "Uaxactun, Guatemala: Group E—1926–1931," *Publications, Carnegie Institution of Washington*, No. 477, Washington, 1937.

the artifacts made at various periods in the rest of the Lowland Maya region and in other parts of Meso-America.

"To serve the purposes of archaeology, artifacts no less than pottery must be intelligently classified, accurately described, and above all adequately illustrated." Dr. Kidder certainly "practices what he preaches" in regard to the above quotation from his report. His classification of the artifacts is sound, his description is clear and concise, and the report is excellently illustrated with black-and-white text figures and a large number of photographs.

The report is valuable in that it presents a picture of the artifacts used by the Maya in the large center of Uaxactun during Tzakol and Tepeu times; also, it contains implications as to customs, cultural norms, and the content and direction of trade. Equally important to the anthropologist interested in Meso-America are Dr. Kidder's thorough distributional studies. The description of each type of artifact is followed by a section tracing the occurrence of that object throughout Meso-America and pointing out possible relationships and problems suggested by such a distribution. In fact, when this report is considered together with that on Kaminaljuyu[3] a very complete distributional analysis of prehistoric material culture items throughout the Mexican and Central American area is obtained.

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[3] A. V. Kidder, J. D. Jennings, and E. M. Shook, "Excavations at Kaminaljuyu, Guatemala," *Publications, Carnegie Institution of Washington*, No. 561, Washington, 1946.

The SU Site, Excavations at a Mogollon Village, Western New Mexico, Third Season, 1946. PAUL S. MARTIN and JOHN B. RINALDO. With chapter by LEONARD G. JOHNSON. Field Museum of Natural History, Anthropological Series, Vol. 32, No. 3. Chicago, June 6, 1947.

After an interval of five years, Paul S. Martin and John B. Rinaldo present in this report the results of the third season's work at the SU site, which with the Bluff site[1] and Sayles' Penasco phase,[2] probably represents the oldest horizon of Mogollon in the Southwest. The data contained in this report supplement those obtained in the two previous seasons; according to Martin and Rinaldo, nothing new was found which would necessitate a modification of the hypothesis set forth in 1943.[3] The major find made during this season was an accumulation of burned roof timbers, the dates of which have not as yet been published.

The bulletin conforms to the Martin-Rinaldo pattern of presenting the architectural features and artifacts from the site in clear photographs with an accompanying page of text. Charts showing the distribution of artifacts and pottery by location in the houses are ample.

[1] Paul S. Martin, George I. Quimby, and Donald Collier, *Indians before Columbus*. Chicago: University of Chicago Press, 1947, p. 200.

[2] E. B. Sayles, "Excavations at Cave Creek and in the San Simon Valley," *Medallion Papers*, No. 34, Globe, 1945.

[3] Paul S. Martin, "The SU Site, Excavations at a Mogollon Village, 1939," *Field Museum Anthropological Series*, Vol. 32, No. 1, Chicago, 1940; Paul S. Martin, "The SU Site, Excavations at a Mogollon Village, Western New Mexico, Second Season, 1941," *Field Museum Anthropological Series*, Vol. 32, No. 1, Chicago, 1943.

The section on pottery by Leonard Johnson is written in a concise fashion, relying on the whole on graphic representation. Johnson concludes that the sherds from the third season corroborated the finds of the two previous seasons, Alma Plain, Alma Rough, and San Francisco Red remaining the types of the Pine Lawn phase.

Ten more pit houses were excavated, making a total of twenty-eight houses in all. Twenty-four of the houses were placed in the Pine Lawn phase and four in the Three Circle. Attention is drawn to Structure Y of the Three Circle phase, which has features in common with a Pueblo kiva. Two large, kidney-shaped structures with steeply sloping entryways were excavated. Their unusual size, depth, and similarity in ground plan, in a village where dissimilarity in house form seems to be the rule, cause Martin and Rinaldo to guess that these structures might have been used for ceremonies.

As yet the skeletal material from the SU site has not been published. Eight more burials were encountered in 1943. A description which includes their location, burial position, and accompanying artifacts is included. It was noted that the burials were found with little burial furniture and in a flexed seated position. Occipital deformation was observed, a trait in common with the Anasazi.

Martin and Rinaldo conclude that the Pine Lawn phase represents a stage in the Cochise-Mogollon continuum with a slight amount of similarity with the Anasazi area. Their guess that the SU people developed a "rigid self-discipline, a belief in all sorts of magic, a defense mechanism against anxieties, and an incapacity for change in their habitual ways of thinking and feeling" raises the question of how much interpretation of this type we can conclude from archaeological evidence. The fact that the important innovations of pottery, agriculture, and possibly permanent types of dwellings[4] were added to the food-gathering base of San Pedro cannot be regarded as evidence that the Pine Lawn people manifested an "incapacity for change."

Martin and Rinaldo have in their three seasons of work at the SU site, now reported on, set an example of intensive work on a single small site. The fact that the third season's excavation confirmed earlier work on the site leaves little room for questioning their descriptive data, even though some of their conclusions may be controversial.

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Man's Unknown Ancestors. RAYMOND W. MURRAY. Milwaukee: the Bruce Publishing Company, 1948 (second printing). 358 pages, 37 illustrations. $4.25.

The two most important and factual sections of this book, of about equal length, comprise discussions of the subject indicated in the title, first for the Old World, then for the New World. The first two chapters provide the approach to the subject by a discussion of the methods of anthropol-

[4] As yet no evidence has been forthcoming of the presence of houses in the San Pedro period. See Martin, Quimby, and Collier, *op. cit.*, p. 90.

ogy, and the details of organic evolution and geological change. The last section is devoted to an interpretation of the significance of what is said throughout the book, especially in its relation to the religious point of view. This section bears the title "Repercussions of Prehistory," and it is here that an application of the theories of the value of prehistory in the formulation of social conduct in the future will be found. In its general idea this is something which has been much stressed of late by prehistorians, both in the classical and anthropological fields.

Professor Murray has dealt well and accurately with the central theme of the book, so well that the reader could say that man's ancestors are not, after all, completely unknown. Considering the objective data that are available the margin of mystery is even greater for modern, living man. The Galley Hill-Swanscombe-Piltdown controversy is discussed at some length in its relation to Weidenreich's classification of fossil man, and the view in general acceptance is the one which is emphasized. The New World is covered with equal thoroughness, though it would seem to have been unnecessary to include Churchward's fantastic lucubrations among the other theories relating to the origin of the New World cultures.

There is an interesting discussion of the attitude of the Roman Catholic Church toward evolution and the data of prehistory in a section entitled "Evolution and Religion." It is reasonable and impartial, and should be welcome to anthropologists interested in the attitude of one of the world's great religious institutions toward their subject; and it is justifiable because the book was written primarily, it is to be presumed, for Roman Catholics. From that point of view alone the entire work is a valuable one, and it represents a courageous and mainly impartial attempt to mitigate the effects of the "Repercussions." There is a suspicion too, that the author is to a certain extent being metaphorical on the last three pages when he suggests that the prehistorian may sometime show that Adam and Eve preceded the fossil human types in the late Tertiary. But if he is not being metaphorical, a field archaeologist can do no more than raise the question of the manner in which they would be identified.

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Eastern Algonkian Block-Stamp Decoration: a New World Original or an Acculturated Art. FRANK G. SPECK. With an addendum "Some Early Indian Basket Makers of Southern New England" by EVA L. BUTLER. Research Series, Archaeological Society of New Jersey, No. 1. Trenton, 1947. v+62 pages, frontispiece in color, 6 plates, 16 text figures. $2.00.

These two papers are excellent examples of the scrupulous research into obscure sources which is required in tracing items of eastern North American culture backward in time. They illustrate vividly the difficulties involved in disentangling the blending and confusion of Indian and European culture which has progressed in this area for over three hundred years. There are today many unsolved problems concerning the histories of certain traits held by both Indians and whites and in determining origins and direction of influence. The earlier sources are usually inexplicit and by the middle of the eighteenth century when more detailed data are available the fusion is such that origins are not evident. Prominent among such problems is that of the history of wood splint basketry and certain techniques of its decoration, with which the present articles deal.

Speck sets for himself the difficult task of determining the origin of block stamp decoration of wood splint basketry and is particularly concerned with whether this is a New World invention or an introduction from the Old World. This technique consisted of the stamping of designs in color by the use of block stamps cut from an Irish potato or sometimes from various other materials such as wood, cork, leather, bone, and spools. The designs were mostly floral and Speck considers them to be entirely aesthetic with no symbolic or religious significance. The earliest records of this technique found are from about the middle of the eighteenth century and the process died out in general between 1880 and 1890, but a few elderly persons practiced it as late as 1910.

The chief resource with which Speck was able to work were samples of the block stamping technique on basketry which have been preserved in museums (mostly collected by Speck himself), in private collections, and as heirlooms in Indian households. Through the years Speck was able to study "several hundred" of these. Data in other forms were rare but Speck seems to have drawn upon every conceivable source. The bulk of the paper is devoted to a careful tracing of block stamping among the New England Indians to determine the presence or absence of the technique among the various Algonkian groups and their Iroquoian neighbors. Particular attention is given to the time factor and possible paths of diffusion. His findings are neatly summarized by areas and tribes and distributions depicted on a map (p. 2). The sixteen text figures show implements used in stamping, design elements, and typical samples of the craft.

Having investigated the occurrence of block stamping through time and space, Speck looks into possible origins of the technique. Archaeology was of no assistance as no archaeological finds of block stamped basketry have been found and Speck was unable to establish a definite relationship between rouletting and stamping of designs on pottery and the block stamping of basketry, bags, and other items. He considers the possibility of its derivation from various native techniques and looks into the time of the introduction of the potato into New England. The printing of the Natick bible in 1664 by the block printing method with Indian labor comes under scrutiny as possibly suggesting block stamping.

The problem is complicated by several factors. The earliest records of block stamping are well over a century after European colonization of New England. Not only has the technique disappeared but also the manufacture of the type of basketry on which it was applied is essentially extinct in the area and even most of the communities in which it was practiced no longer exist. Little documentary evi-

dence is extant and memories of living persons span only a small portion of the period of practice of block stamping. Speck wrings all of the evidence dry in a valiant effort to solve his problem but arrives at something of an impasse. In lieu of sufficient data on which to base definite conclusions, Speck engages in admittedly "speculative deductions" and draws "tentative conclusions" (p. 33). Speck's keen eye sees the scales tipped slightly in favor of an American origin. He considers tentatively that block stamping arose in pre-contact times as an independent feature of native art, superseded the free-hand techniques from which it had developed, became associated chiefly with splint basketry, and had its chief diffusion and later history in this association.

Mrs. Butler surveys documentary sources concerning the Indian makers of baskets in the southern New England region, confining herself chiefly to the century and a half from 1750 to the time of the virtual extinction of the craft around 1900. There is some material for slightly earlier dates and on attempted revivals of basket making in the present century. In this study she has concentrated on obscure and local sources which are unfamiliar to or inaccessible to the average ethnologist. Among these are state and town archives; church, court, probate, and census records; marriage, birth, and death certificates; and accounts of commercial establishments. As she modestly states "A great many records often have to be searched for a small amount of information."

Mrs. Butler is interested in the personal records of the basket makers and presents such data as are available, organizing it by tribes and areas. She is satisfied to present her material as a descriptive compilation with no attempt at correlation or interpretation. In the accounts ethnology is placed on a personal basis with minutiae of personal names, ages, precise locations and dates, and particulars of personal appearance, dress, and habits of the basket makers. Instead of speaking in general terms of the basketry of the Mohegan, for instance, she can state that one Sarah Cooper, a Mohegan, on July 9, 1733 bartered two baskets to John Chandler's trading post in Woodstock, receiving a valuation of 2 shillings 9 pence for one and 12 pence for the other, taking bells and corn in exchange for them (p. 42).

Considerable insight is gained as to the extent of the basketry industry and its economic importance to the Indians in those times. It appears that basket making was an individual craft having little significance for communities as a whole. One gets the picture of individual craftsmen specializing in basketry and catering to a more or less fixed clientele; some at least seem to have been itinerants hawking their wares from town to town. From brief descriptions of finished baskets some idea of size, forms, decoration, and function is gained but there is almost nothing on techniques of manufacture. The basketry seems to have been predominantly that made by plaiting wood splints (ash, oak, and hickory most commonly mentioned) with very occasional reference to Indian hemp, grass, and other flexible materials implying other types and techniques.

Although basketry is the focal point of Mrs. Butler's study there is incidental information on other aspects of Indian culture. There are many genealogical notes, remarks on dress, personal appearance, occupations, economic status, landholding, and Indian demand for and excessive use of intoxicating liquors. Throughout the passages an advanced degree of acculturation is evident and from the data on the reduction of numbers, consolidation of groups, loss of land, low economic position, and social and political readjustments it is clear that the forces which have led to virtual extinction of these groups were well under way at that period.

These papers by Speck and Butler pioneer in demonstrating the possibilities of meticulous research on detailed records of the relict and extinct peoples of the Eastern region, and seem to foreshadow the kind of studies to which ethnologists will of necessity resort as functioning cultures disappear and opportunities for field work diminish around the world. The approach has here had a fair test as both authors are mature scholars, have intimate familiarity with the area, and have carried on protracted study of their problems. Their work, while showing the possibilities, also reveals the limitations. There is a mine of information to be tapped but the ore does not assay very high. It is readily apparent that much can be salvaged but a great portion of the record can never be filled in. Specific data dwindle away into a haze around 1750 and leave the earlier critical century and a quarter of contact with only vague and inexplicit record. Even the writers since 1750 show a deplorable lack of foresight as to what twentieth century ethnographers would like to know about the Indians.

This attractive number initiates a new series which has entered the field most auspiciously. The editors have set a high standard in the quality of the articles, in the attractive cover, and in general format. The bulletin is adequately illustrated, has an ample table of contents and index, and is a model of organization and presentation of data.

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Archéologie de la province d'Esmeraldas, Équateur. RAOUL D'HARCOURT. Journal de la Société des Américanistes, n.s., Vol. 35, pp. 61–200, Pls. 1–61. Paris, 1942 (1947).

This important monographic article describes and analyses the Terver and Musée de l'Homme collections of pottery and stone from Esmeraldas, Ecuador. (Metal objects are treated in a following article by Reichlen.) Though much briefer than Saville's monumental Manabí volume, the present study is nevertheless of a compass more or less balancing it, since stone sculpture, so conspicuous in Manabí, is lacking in Esmeraldas. Dealt with are pottery vessels of the usual Ecuadorean quality (6 plates); miniature bowls with heavy incising, definitely effective aesthetically (3 plates); pottery seals, both flat and cylindrical (2 plates each); pottery figurines (19 plates); double figurines and reliefs (1 plate); figurine parts, mainly heads (13 plates); animal and bird figures (4 plates); pottery faces or maskettes (2 plates); effigy-shaped ocarinas (4 plates); pottery manioc graters (1 plate); beads and other objects of pottery (3 plates).

The modeling in clay is varied, original in conceptions,

and often aesthetically refreshing and worth while. It seems if anything superior in these respects to that of adjoining Manabí. It is not equal to Mochica clay sculpture in technological control, and is carried to less of a finish; but there is similar verve and ability to express significant plastic form. The art is about on the level of what a still unstandardized Mochica might have been: creative but not yet well channeled. Thus Mochica modeling is technically all subordinated to being part of usable vessels; Esmeraldas riots in free figurines, which in Mochica are both few and formally stiff. There are grotesques, caricatures, deformations, mutilations; but especially naturalistic expression and features in great variety. The bodies come in many postures and gestures: hand to mouth, pointing, chin cupped in hand, elbow on knee, forearm across knees, and such. As in Mochica, the subjects are prevailingly secular; ritual and symbolism are unimportant; and there is nothing at all monumental, hardly even life-size. It is a Tanagrine art in scope—though opposite in orientation: a possible prologue to a sculpture, not a terminal by-product of it. At any rate it will have to be reckoned as one of the few creative arts of native South America and one of the still fewer vigorously spontaneous ones.

Two ethnographic considerations emerge. The whole highland of Ecuador has nothing in tangible remains to match Manabí-Esmeraldas in cultural quality. It was the coast that was the more advanced, so far as archaeological evidence goes. What remains unknown is the southern coast, beyond Guayaquil—as also northernmost Peru, from the Chira to the Tumbez.

Second, d'Harcourt convincingly marshals Esmeraldas traits having foreign counterparts, and shows these to be Central American five or six times as often as geographically nearer Peruvian. Here is the list. *Peruvian resemblances:* double-spout jar (rare); twin jar (rare); pathological or mutilated figures or faces; erotic scenes (in ceramic relief); Pan's pipe. *Central American resemblances:* clay fillets and buttons; lower heat of firing than in Peru; green pigment (fired in Esmeraldas and Manabí); flower-pot-shaped bowl; shoe-shaped bowl;* tripod bowl;* high pedestal bowl; incising of small bowls (d'Harcourt sees their volute and jewel designs as Maya, but the reviewer is unconvinced); flat stamp seals; cylindrical roll seals (the seal design of a "fantastic feline with up-curled nose" is reckoned by d'Harcourt as both Central American and Peruvian; the reviewer is uncertain, because we are here on the border between theme and style, but the Esmeraldas figures certainly might be connected with the Recuay linear cat design, which stylistically—in spite of Tello—still stands pretty isolated in Peru); figurines frequent;* seated figurines, with forearm across knees or up; atlantean figurines; human face in jaws of feline; pads or cornucopia on side of head; "Neapolitan coiffure"; coffee-bean eyes; eye with circular depression for pupil; necklace knotted with loose ends down chest; plaited screen on back; men's pubic apron from belt or string; 5–6 holes in ear edge; animal figures frequent;* pottery masks;* ocarina; round beads;* mirrors of pyrites; of obsidian; mirror receptacle in shape of feline (cf. 4-legged metates); soft stone figurines with inlay; also, at least non-Peruvian, manioc grater, pipe, canoe. One may correct or dispute about this trait or that; the heavy preponderance is considerable and convincing.

D'Harcourt usually says "Central America," but frequently specifies Maya or even Teotihuacan. The reviewer sees next to nothing that is specifically or exclusively Maya. He would rather say that the Esmeraldas resemblances were primarily in Meso-America south of the Maya—Honduras to Panamá, with Colombia presumably to be included as soon as its inventory can be marshalled; and with Guatemala and Mexico involved primarily through southeast Meso-America and therefore indirectly. How far diffusion was overland or by sea voyages is a separate problem. But the weight of the leaning is indubitable.

In terms of the Smithsonian *Handbook* classification, Ecuador—at least the coast—and thus by implication Colombia also, now seem preponderantly "Circum-Caribbean." And does this mean that the "Andean" unit of culture was confined to the Peru-Bolivia-Argentine stretch?

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* These traits occur also in Peru, but are rare there.

Culture Complexes and Chronology in Northern Texas, with Extension of Puebloan Datings to the Mississippi Valley. ALEX D. KRIEGER. The University of Texas Publications, No. 4640. Austin, Texas, 1946. 336 pages, 26 figures, 35 plates, name and place, subject indices. $2.50.

This volume is one of a series of publications by the author related to archaeological studies in Texas, especially the "Caddoan area" of East Texas and the adjoining states of Oklahoma, Arkansas, and Louisiana. It was preceded by several articles which held promise of elucidating many of the problems of this area. As became evident at the "Caddoan Conference" in September, 1946, the answers to certain questions of cultural development and temporal sequences in the Caddoan area will have considerable effect on archaeological interpretations in the entire Southeastern area. For example, we have seen a trend away from the previous inclination to compress the entire Caddo prehistory into a brief span of years, and away from the idea that the "Southern Cult" was entirely a post-De Soto development.

The tremendous distances and the apparent discontinuity of cultures in Central and Western Texas have made difficult any attempt to demonstrate cultural links between the Southeastern and the Southwestern or Mexican archaeological provinces. In this volume Krieger throws a bridge, admittedly tenuous but more substantial than any heretofore constructed, connecting the Southeast and the Southwest through the Caddoan area and across northern Texas. It certainly seems more substantial than the recently suggested Huasteca-Caddoan bridge, which, although well planted at either end, leaves a long middle span without support.

Of secondary importance to the consideration of temporal and areal relationships, Krieger's present volume serves a useful purpose in delineating and clarifying relationships of a number of central and northern Texas cul-

ture complexes. He disclaims any attempt to analyze Texas archaeological cultures as a whole, limiting his discussion to the later pottery-making periods.

In Part I, dealing with the Panhandle and Western Plains of Texas, Krieger pays particular attention to a group of sites along the Canadian River which he terms the Antelope Creek Focus. Pueblo influences are suggested by the architectural features of the multiple-roomed structures of stone and adobe. The typical house, as reconstructed by the author, was rectangular, with stone slabs placed vertically in the walls, probable roof entrance, a ventilator projecting toward the east, sunken middle third of the floor with side banks which had raised curbs, central firebasin, four roof posts, and often an altar or square bank opposite the ventilator. Storage rooms occasionally flanked the ventilator and slab-lined storage cists were found.

On the other hand, there is evidence of an economy based on hunting and agriculture, with bone hoes, elbow pipes of stone, many artifacts of chipped stone, bone and antler, and a single type of cord-marked pottery, which point to relationship with Plains cultures, especially Upper Republican. It is suggested that these people were Plains agriculturalists who pushed into this area, contacted the expanding northern Puebloans, and developed a combined Plains-Puebloan culture. Kelley is credited with the interesting suggestion of sex-linkage of traits to account for the selective borrowing which is noted—i.e., Puebloan architectural features, pottery sherds, turquoise, and obsidian in the Panhandle ruins; "Alibates" flint, Plains hunting, skinning and sewing implements at Pecos pueblo. Datable Puebloan sherds in the Antelope Creek ruins indicate contact between 1300 and 1450 A.D.

The Llano Estacado exhibits scattered evidences of habitation by Puebloan peoples, the pottery sherds being generally of the El Paso-Chupadero series and early glazes, suggesting that the occupation occurred largely between 1300 and 1500 A.D. Similar evidence is adduced to show that Puebloan elements were introduced into the Trans-Pecos area of Texas during Pueblo III, lasting into IV, and that the general spread of Puebloan materials deep into Texas, reaching eastward about to the boundary of the Llano Estacado, receded after about 1450 to 1500. Krieger suggests that trade relationships with Northeastern Texas peoples had been established by this time and continued into historic times.

In North-Central Texas, discussed in Part II, the author describes the Henrietta Focus as a key culture from the standpoints of areal extent and of relationships with the Southwest and the Caddoan area. Hundreds of small sites on streams in the headwaters of the Brazos and Red rivers, although showing some areal differences, have a cultural continuity, Plains-like in general, which combines agriculture with the hunting of bison and smaller game. Plain shell tempered pottery (Nocona Plain) is a universal trait. Villages were located on small streams; agriculture is demonstrated by bison scapula or skull hoe blades, stone manos and grinding slabs. Illustrative of the intermediate position of this culture between the Southwest and Southeast is the finding of flat grinding slabs and manos used with back and forth motion (Puebloan technic) and rotary mano with oval-basined sandstone slabs (Southeastern technic). Small triangular projectile points, plain and side-notched, are common, but larger or "dart" points appear consistently. Other stone tools are snub-nose and side scrapers, flint drills, leaf-shaped and 4-beveled knives. A large variety of bone tools and ornaments has been found.

Krieger is handicapped in interpreting the results of excavations at the type site, the Harrell farm at the junction of the Clear and Salt forks of the Brazos, since he deals with unpublished field notes and analyses of other workers. Nevertheless, publication of the results of this excavation should be of considerable value to those working in related fields. Artifacts were found to a depth of 10 feet, with a relatively greater intensity in the upper midden layer than in the red clay substratum. Although there is some uncertainty in assignment of artifacts to each of these strata, considerable cultural continuity appears throughout, with major types found at all levels. The site, as seems generally true of the Henrietta Focus, exhibits a carry-over of rock hearths, large projectile point and scraper types from the earlier Edwards Plateau horizon. Yet even the deepest levels at the Harrell site yield plain shell-tempered pottery sherds.

This site illustrates a situation which apparently prevails throughout the area covered by the Henrietta Focus, for some degree of continuity of culture is confused by the presence of numerous artifact types, i.e., at least eight types of large projectiles and as many of the small (arrow) points, with some percentile variation at the different levels of excavation. Likewise areal variations are observed, so that one may be critical of lumping all together in a single "focus," with its connotation of limit in time and space. Krieger admits that "focus" is used here in a looser sense than elsewhere and suggests that later study may demonstrate two or more foci. More exact cultural delineation is handicapped by the absence of house patterns and of artifact placement with burials at the type site. Excavations at other sites will help to clarify these problems.

Indications of trade relationships with the Southwest are limited. Six sherds of Chupadero Black-on-White were found by Witte in an excavated site considered to be "pure" Henrietta Focus. Quoting Mera to the effect that Chupadero Black-on-White lasted from the thirteenth well into the sixteenth century, the author thinks it likely that this trade contact into the Red River Valley resulted from the eastern extension of Puebloan culture which brought Chupadero wares into the Llano Estacado in the fifteenth century. Other scattered Puebloan sherds found on the surface of Henrietta Focus sites are dated between 1450 and 1550. Although scanty, these evidences indicate that the focus existed between 1450 and 1600 A.D., a comparatively late date which is attested to by the ubiquitous shell-tempered pottery.

The author does not agree with Sayles in the identification of this culture, despite its Plains-like traits, with the Wichita. He finds no support of this by historical approach or by comparison with accepted Wichita remains at the Spanish Fort site on Red River, occupied by Taovayas Wichita in the eighteenth century, where Puebloan and Caddoan trade sherds of that time period are also found. It

is his opinion that Wichita tribes did not reach northern Texas until after 1700. By comparative culture studies, he equates Henrietta temporally with prohistoric Pawnee and Paint Creek (Wedel's Great Bend Aspect), attributed to protohistoric Wichita, which Wedel by independent calculations considered as existing in Nebraska and Kansas during the intervals of 1500–1750 and 1450–1650, respectively.

Henrietta Focus artifacts (Nocona pottery, beveled knives, and snub-nosed scrapers) have been found in graves of the Frankston and Titus foci of the Fulton Aspect, which represent Caddoan peoples, largely protohistoric. Conversely, Frankston Focus sherds appear frequently in the Abilene area on sites which contain Nocona type potter. Despite these evidences of contemporaneity and occasional contact, Krieger stresses the fact that Henrietta peoples, like the central Plains Caddoans, lived alongside the southern Caddo or Caddo proper, with no indication of close cultural relationship. Nor does he find any choice of temporal priority in culture development between the central Plains Caddoans and the southern group.

The Austin Focus, which Kelley relates to the protohistoric Tonkawa, covers a large part of Central Texas. It is characterized by the association of two distinct types of small projectiles, beveled knives, snub-nosed scrapers, and bone-tempered plain pottery. Frankston Focus sherds and occasional white trade materials evidence temporal lateness. The author states that this situation prevails over much of central, southern, and western Texas, where the remains of pottery-making, agricultural peoples form a thin film over the relatively long-lived hunting cultures with flint industries. In contrast, the extreme western and eastern sections of the state have pottery, agriculture, and light arrow points in remains of considerable depth so that cultural relationships and time sequences antecedent to the protohistoric period can be worked out.

Krieger is on surer ground in Part III as the locale shifts to the wooded area of northeastern Texas, which, with the adjoining sectors of Louisiana, Arkansas, and Oklahoma, was occupied in historic times by the "Caddo proper" or southern Caddoan peoples. Using the Midwestern taxonomic system, it is the author's opinion that "the archaeological cultures in the 'Caddo area' fall almost entirely within the general conception of 'Mississippi Pattern,'" with at least twelve foci belonging to two distinct aspects. Evidence adduced from stratification in a number of excavated sites, interrelationships between the various foci, and trade artifacts or trait relationships with extraneous cultures indicates that the Gibson Aspect is older than the Fulton. The latter is thought to represent protohistoric and historic Caddo remains, with white contact materials appearing in two foci, Glendora (historic Natchitoches) and Frankston (historic Hasinai).

In the present volume only one focus is considered in detail, the Sanders Focus (Gibson Aspect), which is the westernmost of the twelve foci, found in a narrow strip on each side of the Red River contiguous to the Plains-like cultures. The type site on the Sanders farm in Lamar County, Texas, was excavated by Jackson and Gardner for the University of Texas in 1931. Although assumed initially to be a mound site, later it became evident that it consisted of two natural eminences capped by midden material, with a considerable area of surrounding village midden. Physical and cultural stratification is indicated, but the author notes that inexact control prompts him to avoid precise figures on the occurrence of various artifacts.

Surface materials relate to cultures distinct from the main body of Sanders Focus materials as represented in deeper midden deposits and the 21 homogeneous burials. Among the surface objects were Nocona shell-tempered pottery sherds and an assemblage of stone and bison scapula or skull artifacts which the author assigns to the Henrietta Focus. Numerous "pocket cache pits" and several flexed burials without offerings are also assigned to this focus. Some 200 surface sherds represent pottery types typical of the Texarkana, Titus and Frankston foci of the Gibson Aspect.

An admitted weakness of Krieger's formulation of the Sanders Focus is that its trait assemblage is derived largely from the Sanders site burials, supplemented to some degree by the deeper midden artifacts at this site and surface collections at related sites. Rectangular pits contained one to eight skeletons with abundant offerings. Multiple burials represented individuals of all ages and both sexes; the large dolichocephalic skulls showed fronto-occipital deformation. Accompanying artifacts included engraved conch shell "dippers" and gorgets, "hair-tubes," copper-sheeted ear spools, pendants and inlays of shell, over 5000 disc and barrel shaped shell beads, as well as beads of pearl, Olivella shells, and lithosperm seeds. These suggestions of a rich ceremonial and decorative complex related to the "Southern Cult" are enhanced by the decorative designs on the gorgets, which include the human face, turkey, eye-symbol, bi-lobed arrow, beaded forelock, and cross (plain or swastika).

Other burial artifacts are bison-scapula hoe blades, stone elbow pipes, long-stemmed pottery pipes, celts, 4-beveled knives, and a single type (Bonham Barbed) of thin, barbed arrowpoint with bulb-shaped stem. The abundant pottery encompasses a number of shapes, sizes and decorative techniques, the latter characteristic forming the basis for Krieger's classification: Sanders Plain, Sanders Engraved, Canton Incised, Maxey Noded Redware, and Monkston Fingernail Punctated. A minor criticism is that the latter is termed "Impressed" in Fig. 14, "Punctated" elsewhere. Clay, sand, and bone tempering were used, never shell. Surfaces were polished and rarely glossed, with red filming in more than 10 per cent of the cases.

In comparison with pottery traditions of other foci of both Gibson and Fulton aspects, Sanders pottery differs in the high percentage of undecorated vessels (42 per cent) and in the comparatively simple, straight-line motifs of the engraved wares. In all other foci, engraved designs include varying numbers of curvilinear motifs. The reviewer considers Krieger to be correct in assigning the single bottle with complex curvilinear decoration found at the Sanders site to trade from the Haley Focus of southwestern Arkansas, although he cannot agree conversely that the bottle illustrated by Moore from the Haley site, which is red-filmed and has applique nodes, is intrusive from

Sanders Focus. The vessel alluded to appears in Moore's photograph to have ticked line decoration, which, like curvilinear lines, is not found at Sanders. Noded redware bottles are found in southern Arkansas at other sites, which could have been the source of this vessel.[1] The Haley site, while exhibiting features which in the main fall into the Gibson period, shows some burial and pottery traits which suggest a transition between Gibson and Fulton periods, hence may be later than other southwestern Arkansas sites (Crenshaw, Mineral Springs) which Krieger includes in the Haley Focus.

A number of miscellaneous objects from the Sanders midden are of questionable significance. Partial subsistence on the hunting of deer and smaller game is indicated by numerous bones, with very few bison remains. The author quotes Pearce in the description of floor plans, as outlined by post molds, having three walls, one open side, and central fire pits.

Projected from the attempt to answer questions as to age and affiliations of the Sanders Focus, the author covers broadly and succinctly the entire field of the Caddoan Area. Future excavations and research will undoubtedly modify or add many details, but the broad outline of Caddoan archaeology presented here and in Krieger's other publications on this subject will stand as a monument to his industry and perspicacity and as a base of reference to other workers in this field. It is perhaps unfortunate that the present publication has preceded his comprehensive summary of Caddoan archaeology, as students who are unacquainted with the latter will not have the full background of reference in considering areal and temporal relationships.

Krieger places Sanders Focus in the Gibson Aspect, contemporaneous with Haley Focus in Arkansas and Orr's Late-Middle Component at Spiro, stating that the other foci, Alto and Gahagan, were probably earlier. He demonstrates close relationships by occurrence of trade objects, similar culture traits, and artifact types common to the five foci. For example, all foci have pottery which is clay or bone tempered (no shell), highly polished, with finely engraved designs on bottles and bowls, incised and punctated designs on other vessels; long stemmed pottery pipes; stone ear spools; ground celts with sharp bits; white sandstone hones; and small, barbed arrow points with bulb-shaped stem. Where burials have been found, there is evidence of a highly developed ceremonial complex, with many multiple burials, and elaborate manufacture of ground stone, shell, and copper artifacts. Only Sanders and Spiro, he states, shows specific "Southern Cult" ceremonial traits.

The author considers the chronological position of Sanders Focus in a horizon preceding that of the Fulton aspect to be established by (*a*) the relationships with other Gibson Aspect foci, as noted above; (*b*) the presence of Fulton Aspect pottery, as well as Henrietta Focus material, on the surface of the Sanders site, overlying Sanders Focus materials; (*c*) lack of cross intrusions between Sanders and the Fulton Aspect sites. Historical and archaeological evidences are marshalled to demonstrate that Frankston Focus of the Fulton Aspect can be identified with the Hasinai division of the Caddo tribes, considered by Swanton as having been visited by De Soto's followers under Moscoso in 1542 and noted at that time to be engaged in trade with Puebloans.

Archaeological evidences of contact with Puebloans are confined to the Fulton horizon, none having been demonstrated as yet in Gibson foci. These evidences include: (1) There are olla vessel forms in the Titus Focus which are stated to resemble those of the upper Gila Basin (it may be added that the olla form appears also in Belcher Focus). (2) The technique of neck-banding is present on utility vessels of the Frankston, Titus and Texarkana foci, but is completely absent in the Gibson Aspect. (3) At Pecos Pueblo, during late Glaze III and Glaze IV periods, new bowl forms appear which are common in Fulton foci of northeast Texas. Despite an extensive and valuable comparison of vessel forms in the Pueblo and Caddo areas, this evidence appears to be the weakest which Krieger presents for temporal relationships between the two areas. Similarities in vessel shape, especially of bowl forms, are world-wide; on this basis one could adduce temporal relationship between the Caddo area and the Archaic or other early periods in the Valley of Mexico, where the same bowl forms occur. Other studies of decorative motifs, which the author suggests, might be considerably more fruitful. In the discussion of bowl forms, a factual error might be pointed out, as Krieger states "It seems clear enough that two distinct concepts operated in the rims of bowls in the region, and that Texarkana Focus is the *only* complex in which both were common," whereas Belcher Focus pottery has the "true" shouldered bowl, as well as modified and carinated bowls. (4) Puebloan trade sherds are found in northeast Texas sites. This is important but limited evidence, since it is confined to five sherds, four of which are surface finds. Identification of the sherds and the site association constitute corroborative but not final evidence in support of the author's conclusion that the Caddoan groups represented by the Fulton Aspect were in communication with Puebloans during the fifteenth century, well in advance of 1542. Since Sanders Focus antedates both Henrietta Focus and the entire Fulton Aspect, which are calculated independently to have been in existence before 1500, the author concludes "it appears inescapable that Sanders Focus with its 'Southern Cult' material is to be dated at previous to 1450, perhaps between 1300 and 1400 A.D."

An attempt is made as a final step to formulate a temporal correlation of culture units. The pottery-bearing cultures of a vast area between the eastern Pueblos and the Mississippi Valley and from northern Texas to the central Plains are considered as falling into two general horizons, with no sharp temporal division but reflecting profound cultural changes during and after the fifteenth century. Several reasons—climatic changes, entrance of new peoples, cultivation of new crops, extension of trade contacts—are suggested.

In the earlier horizon, Krieger equates early Pueblo IV, the Puebloan extensions into trans-Pecos Texas and the Llano Estacado, Antelope Creek Focus, Upper Republican

[1] M. R. Harrington, "Certain Caddo Sites in Arkansas," *Indian Notes and Monographs, Museum of the American Indian*, New York, 1920, Pl. LXXXV.

and Nebraska Aspects in the central Plains, Gibson Aspect, Coles Creek in the lower Mississippi and Early Middle Mississippi (Old Village at Cahokia). These are estimated to have started about 1100–1200 A.D. and to have terminated at about the fifteenth century. The more eastern of these cultures are placed in Ford and Willey's Temple Mound I period, therefore setting the Burial Mound stages further back in time.

In the later horizon, lasting from the fifteenth century until historic times, Krieger equates the later Glaze periods in the Pueblo area, protohistoric Pawnee and Wichita (Paint Creek), Henrietta Focus, the entire Fulton Aspect, Late Middle Mississippi, Plaquemine, and historic Natchez. The eastern cultures of this horizon generally have shell-tempered pottery and belong to the Temple Mound II stage.

A critical evaluation of Krieger's conclusions is difficult to make, especially in brief, since they involve cultural relationships across the entire country and implicate the Southeast and Mississippi Valley in a revolutionary temporal readjustment. The general cultural alignments mentioned in the two horizons receive support from recent publications of Kelley, Wedel, and Griffin. There can be little question concerning the alignment of protohistoric Caddo cultures of the Fulton Aspect with the later stages of Middle Mississippi, Plaquemine, Natchez, Henrietta in at least its later stages, and the protohistoric Plains cultures; nor can there be much doubt that the mound building cultures of this late horizon are in Temple Mound II stage.

Concerning the earlier horizon, the reviewer agrees with Griffin that Gahagan may be equated temporally with Old Village and Aztalan, also with Coles Creek, and pointed out, some years ago, evidences of relationship between Gahagan and cultures of the St. Johns area in Florida, now termed the Mt. Royal Aspect. These affiliations bear out Krieger's alignments in the early horizon, but there is considerable question whether the Gibson Aspect cultures which exhibit Southern Cult material, i.e., Sanders and the Middle Period at Spiro, are as old as Gahagan.

Rigid acceptance of two separate and fixed periods in the Caddoan area, one beginning at 1100–1200 A.D. and ending in the fifteenth century, the second lasting from this point to historic times, with the cultural affiliations as outlined by the author and with the Southern Cult confined to the first horizon, offers some very practical difficulties. If the florescence of the Cult coincided at the western (Spiro, Sanders) and eastern (Etowah, Moundville) centers, this would mean that the eastern centers were flourishing a century before De Soto's time and we must conclude that they had declined by then or offer some explanation why they were missed by his party. On the other hand, if those who conclude that these centers reached their apogee after De Soto are correct, and Krieger's dating is correct for the western centers, a gap of over a century between the eastern and western cult centers remains to be filled. Regardless of the eastern datings, Krieger's estimate predicates a life of at least two centuries for the cult after its full development at Spiro and Sanders, in addition to its previous developmental phase. Although the author mentions influx of new peoples as one possible factor in the widespread disturbances of Indian cultures between the two major periods, he evidently discounts white influences (the Mexican conquests) as playing any part in these disturbances. The marked increase in evidences of syphilis in skeletal material of the Middle Mississippi period, formerly considered as introduced or flared up in post-Columbian times, also the evidences of population decline in Temple Mound II period, attributed to introduction of smallpox and other new diseases, must be carefully re-evaluated with relation to the datings proposed by Krieger. Skeletal material from the first level at Belcher, which equates with the Haley site, showed evidence of syphilis, but none was noted at Gahagan.

It is generally conceded that the widespread invasion of the Southeast by Middle Mississippi peoples had preceded De Soto's entrada by a sufficient length of time for them to become well established. This is borne out by the evidence of tree ring datings at Kincaid, which demonstrate that the Middle Period existed from approximately 1515 to 1587. De Soto's chroniclers, on crossing the Mississippi River, mention thickly populated country and palisaded villages near the river, and on their return to the river at the time of De Soto's death, dense riverine populations. The contacts with the province of Quigaltam have suggested to Swanton and others its identification with the Natchez. Ford and Willey describe the transition from Temple Mound I to Temple Mound II periods as a time of contraction of villages into compact groups, the development of protective palisades, and withdrawal away from the major river valleys—all defensive measures.

The situation encountered by De Soto suggests elements of both periods—persistence of riverine populations but the beginning at least of protective measures. Ford and Willey's datings would place De Soto in the Coles Creek–Early Middle Mississippi–Gibson period; Krieger's would place his journey in the Temple Mound II–Fulton period. The reviewer suggests the late transition period, with a number of the culture shifts indicated by Krieger already having been initiated—and possibly accelerated by the tremendous and widespread repercussions on Indian cultures which must have resulted from the Mexican conquest and the early sixteenth century contacts between Cuba and the Southeast. In the Caddo area, all evidences indicate that the later or Fulton period had started by De Soto's time.

Some of these difficulties may possibly be resolved by altering the rigid concept of two distinct periods in the Caddo area, with the author's acceptance of the later and rejection of the earlier as being prehistoric Caddo cultures. This tendency toward rigidity and sharp divisions in time is one of the weaknesses of the McKern system. Granting that two broad horizons may be recognized and that Krieger's extensions of datings from the Southwest appear to be valid for some of the cultures within these generalized periods, we may profitably seek evidences of more fluidity and continuity of Caddoan culture, as well as evidences of a progressive development of the cult material, to replace the concept of a sudden widespread religious revival born of desperation. When we examine the situation at two of the chief areas of culture development, Spiro and the mid-Red River area (centered on the great bend at Fulton, Arkan-

sas), we find these evidences abundantly. Orr and his coworkers describe four or possibly five periods at Spiro with development and decline of many culture traits proceeding at varying rates and without evidence of a sharp cultural break. The introduction, florescence, and decline of Southern Cult material seems to cover more than one of these periods and does not coincide with the evolution of many other culture traits.

Similarly, along the Red River in the geographic and cultural center of the Caddoan area, we see four to five culture periods. Gahagan exhibits mound building; large burial pits; a highly developed ceremonial complex, without cult material but with copper and galena; ceremonial breakage of burial artifacts; Copena blades; effigy stone and long stemmed pipes; scant pottery with finely engraved lines; scooped out spaces in pottery, filled with pigment; and conical-neck bottles (apparently a marker for the earliest Caddo period). Mineral Springs in southwest Arkansas shows much the same traits. Crenshaw, Ozan I, Washington, and the Haley Mound carry on the mound building and large burial pit tradition, with long stemmed pipes, but show a diminution of the ceremonial copper-effigy pipe-polished stone-Copena blade group of traits and progressive increase in amounts of pottery and varieties of pottery types. Cult material is still missing or only suggestive (shell cups, sun symbol); no shell tempering has appeared in the pottery, but ticked lines make their first appearance. At Belcher, the first level equates with Haley, has large burial pits, and has a rectangular house with wall trenches and northeast projection of entranceway. The later Belcher levels have circular houses with doorways projecting toward exactly the same point of the compass as the earlier; a carryover of some of the earlier pottery types, but much more highly developed pottery with numerous types (including trade wares from Titus and Texarkana foci); the first introduction of shell temper; absence of long stemmed pipes; multiple and single burials; and the presence in this and other similar sites of cult material (pearl beads, sun symbol, copper-covered stone ear spools, shell gorgets with cross or swastika, engraved shells including eagle-serpent design). The Texarkana Focus (Hatchel Mound) equates with Belcher in pottery but has no cult material. Burials are single, in small pits. Finally the latest period is represented at Natchitoches, with loss of mound building and of cult material, presence of artifacts (trade), and a carry-over of certain types of pottery from the Belcher and Titus periods, preponderantly shell-tempered.

The reviewer submits that the older cultures of Krieger's Gibson period as well as the later cultures of the Fulton period are pre-Caddo; that culture changes in the larger centers of the Caddoan area are progressive, with the carryover of some Gibson traits to the later period and the possibility of simultaneous existence of Gibson and Fulton cultures in some areas (as seen in northwest Louisiana, where the majority of surface collections demonstrate mixed Alto-Bossier pottery types); and that comparisons with surrounding cultures or the extensions of datings which Krieger has worked out so beautifully must take into account the considerable interplay of culture development within the Caddo area, proceeding at various speeds in different places and with regard to different traits, including the Southern Cult material.

CLARENCE H. WEBB
Shreveport, Louisiana

ANNUAL MEETING OF THE SOCIETY FOR AMERICAN ARCHAEOLOGY, 1948

The thirteenth annual meeting of the Society for American Archaeology was held on Friday and Saturday, May 14 and 15, 1948, at the Milwaukee Public Museum, Milwaukee Wisconsin, in conjunction with that of the Central States Branch of the American Anthropological Association.

MEETING OF THE EXECUTIVE COMMITTEE

A meeting of the Executive Committee was held preceding the regular business meeting of the Society. Approval was voted of the budget for the coming year, as printed below (pp. 147–8). Approval was also given to the President's appointment of a Committee on the Newport Tower.

ANNUAL BUSINESS MEETING

The annual business meeting of the Society was called to order by President Johnson at 4:30 p.m. on Friday. Approximately 50 persons were present.

The minutes of the twelfth annual meeting were not read but were approved as published in AMERICAN ANTIQUITY, Vol. XIII, No. 2 (October, 1947).

The report of the Secretary was read and accepted. (See below, p. 148 for this report.)

The report of the Treasurer was read, in his absence, by the Secretary, and was accepted. The report of the Auditing Committee was also read and accepted. (These reports are included below on pp. 148–9.)

The report of the Editor was read and accepted. (This is printed below on p. 150.)

J. O. Brew reported briefly on the activities of the Council for Preservation of Historic Sites, Buildings, and Monuments. He also reported on the work and plans of the newly appointed Committee on Newport Tower. Both reports were accepted.

On behalf of the Department of Anthropology of the University of Indiana, George Neumann extended an invitation to the Society to hold its next annual meeting at Bloomington, Indiana. Karl Schmitt, on behalf of the Department of Anthropology of the University of Oklahoma, invited the Society to meet at Norman, Oklahoma, next year. Both invitations were referred to the Executive Committee for decision as to time and place.

Dr. F. C. Cole informed the Society that the dendrochronological facilities of the University of Chicago would be transferred on a long-term loan to the Department of Anthropology at the University of Oklahoma, with R. E. Bell in charge. The University of Oklahoma has consented to continuation of dendrochronological research by Dr. Bell, but is unable to assume the financial burden of work done for other agencies and institutions. Dr. Cole pointed out that the work has just reached the stage where definitive results may be anticipated, and where dating might be possible for others working in the Mississippi Valley region. He suggested that other institutions and organizations interested in participation in this program undertake to help carry the financial load, at the same time designating a representative to act on an advisory board for the project. Interested parties were asked to communicate with Dr. Cole at the University of Chicago.

J. D. Jennings moved that the Society for American Archaeology go on record as approving a cooperative central dendrochronological laboratory at the University of Oklahoma, and this motion was seconded and approved.

Dr. Jennings then moved that the Executive Committee be instructed to determine whether or not financial support of such a laboratory project is feasible on the part of the Society, and if it is feasible, to extend it. This motion also was seconded and approved.

J. B. Griffin moved that future balloting for the officers of the Society be by mail. This motion was seconded and was approved by a majority voice vote.

The following resolutions were presented by the Committee on Resolutions (Byers, Chairman; Griffin; McGregor):

Resolved: That the Society for American Archaeology hereby expresses its appreciation to W. C. McKern and the staff of the Milwaukee Public Museum for their hospitality in placing the facilities of the Museum at the disposal of the Society for its annual meeting.

Resolved: That the Society for American Archaeology regrets the unfortunate accident which prevented W. C. McKern from attending the meetings of the Society of which he was one of the founders and in which he has long been keenly interested.

Resolved: That the Society for American Archaeology thanks W. R. Wedel for his long and faithful service in the capacity of Secretary.

Resolved: That the Society for American Archaeology expresses its appreciation and admiration of the outstanding work in behalf of American Archaeology at a time of crisis performed by Frank H. H. Roberts, Jr., in coordinating the work of the River Basin Archaeological Surveys.

Resolved: That the Society for American Archaeology hereby expresses its regrets at the death of Henry F. Adolph, Lila M. O'Neale, David L. Whitman, and Clark Wissler and extends its sympathy to their families, and that the Secretary be and hereby is instructed to write to their families enclosing a copy of this resolution.

For the Elections Committee (Wedel, Chairman; Drucker; Collier), Drucker announced the results of the balloting for new officers, as follows:

President:	W. R. Wedel
First Vice President:	W. S. Webb
Second Vice President:	A. Serrano
Secretary:	G. I. Quimby
Members of the Executive Committee:	E. Reed (to 1949)
	M. W. Stirling (to 1949)
	P. Drucker (to 1950)
	W. C. Haag (to 1950)

The annual business meeting adjourned at 5:30 p.m.

ANNUAL DINNER

The annual dinner of the Society, attended by members of the Central States Branch as well as of the Society, was held at the Hotel Plankinton at 6:30 p.m. on Friday. Following the dinner, retiring President Johnson, on behalf of the Society, presented the 1947 Viking Fund Medal and Award for Archaeology to J. O. Brew in recognition of his outstanding contribution on the archaeology of Alkali Ridge, Utah. Two motion pictures were shown to the assembled guests during the evening.

OTHER SESSIONS

On Friday morning, before the first session of papers, Mr. Eldon G. Wolff welcomed the Society and the Central States Branch on behalf of the Milwaukee Public Museum. The following papers were then presented, with President Johnson presiding:

1. "Some Remarks on the Possibility of Archaeological Dating by Means of Radiocarbon." ROBERT S. MERRILL, University of Chicago.
2. "Cultural Change in the Taos Region, New Mexico." DAVID A. BAERREIS, University of Wisconsin.
3. "Classification of Culture in the Southwest." IRVING ROUSE, Yale University.
4. "New Archaeological Finds Near Cintalapa, Chiapas, Mexico." ARDEN R. KING, Middle American Research Institute, The Tulane University of Louisiana.
5. "Utatlan, Iximiche, and the Maya Correlation Probelm." ROBERT WAUCHOPE, Middle American Research Institute, Tulane University of Louisiana.
6. "Rustic Methods of Dealing with Epidemics: A Study in Motivation." FRANCIS L. K. HSU, Northwestern University.
7. "The Status of Christianity in China." ROBERT A. LYSTAD, Northwestern University.
8. "Wartime Cannibalism among Japanese Soldiers: a Problem in Psychiatry or Culture History." RICHARD K. BEARDSLEY, University of Michigan.

On Friday afternoon, with Dr. Frank H. H. Roberts, Jr., presiding, a symposium was held on progress, problems, and plans in the River Basin Surveys program. The following papers were presented:

1. "History and Development of the Work of the Committee for the Recovery of Archaeological Remains to May 1948." FREDERICK JOHNSON.
2. "Progress of the Surveys in General." FRANK H. H. ROBERTS, JR.
3. "Archaeological Surveys in West Virginia and Pennsylvania." RALPH SOLECKI.
4. "Surveys of the Hulah and Ft. Gibson Reservations, Oklahoma, and Plans for the Coming Season." DAVID J. WENNER, JR.
5. "Progress and Plans in California and the Columbia-Snake Basin." PHILIP DRUCKER.
6. "The Missouri Basin Progress, Problems, and Plans." WALDO R. WEDEL.
7. "Progress and Problems in the Missouri Basin from the Viewpoint of the National Park Service." JESSE D. JENNINGS.
8. "Non-Federal Institutions, Museums, and Societies Cooperating with the Program." J. O. BREW.
9. "Survey of the Wolf Creek Reservoir, Kentucky and Plans for Future Work." WILLIAM S. WEBB.
10. "Activities in the Flint-Chattahoochee Basin, Georgia," A. R. KELLY.
11. "Archaeological Survey in Alabama." STEVE WIMBERLY.
12. "Certain Aspects of Local Cooperation with the River Basin Surveys in the Missouri Basin." JOHN L. CHAMPE.
13. "Surveys and Excavations in Oklahoma Reservoir Basins." KARL SCHMITT.

The meeting closed with a session on Saturday afternoon, James B. Griffin presiding. The following papers were presented:

1. "An Interpretation of the Eastern Archaic." WILLIAM SEARS, University of Michigan.
2. "Archaic Persistence in Western Tennessee." MADELINE D. KNEBERG, University of Tennessee.
3. "Recent Finds at Cahokia." DR. P. F. TITTERINGTON, St. Louis, Missouri.
4. "Ceramic Types of the Point Peninsula and Owasco Series." WILLIAM A. RITCHIE, Rochester Museum of Arts and Sciences.
5. "Iroquoian Archaeological Divisions in Time and Space." RICHARD S. MAC NEISH, University of Chicago.
6. "A Ceramic Analysis Technique Useful for Archaeological Survey." JAMES A. FORD, American Museum of Natural History.
7. "Correlation of Archaeological Sequences with Recent Drianage History of the Lower Mississippi River." PHILIP PHILLIPS, Peabody Museum, Harvard University. (Read by James A. Ford.)
8. "Terraces and Time Perspectives in the Central Great Plains." JOHN L. CHAMPE, University of Nebraska.

BUDGET FOR 1948–49

ESTIMATED INCOME

Estimated beginning balance brought forward:			
Balance forward, Working Fund			$ 1,856.37
Balance forward, Planning Committee			972.19
Estimated income from dues paying members and subscribing institutions:			
Prepaid dues brought forward as follows:			
1 partly prepaid member at	$ .50	$ .50	
8 partly prepaid members at	1.50	12.00	
3 partly prepaid members at	2.00	6.00	
1 partly prepaid member at	3.00	3.00	
1 partly prepaid member at	3.50	3.50	
2 partly prepaid members at	4.00	8.00	
8 fully prepaid members at	6.00	48.00	
1 partly prepaid institution at	1.00	1.00	
1 partly prepaid institution at	2.00	2.00	
84 partly prepaid institutions at	3.00	252.00	
1 partly prepaid institution at	4.00	4.00	
8 fully prepaid institutions at	6.00	47.00	
			388.00
Additional remittances due from the above partly prepaid members and subscribing institutions:			
1 partly prepaid member at	$5.50	$ 5.50	
8 partly prepaid members at	4.50	36.00	
3 partly prepaid members at	4.00	12.00	
1 partly prepaid member at	3.00	3.00	
1 partly prepaid member at	2.50	2.50	
2 partly prepaid members at	2.00	4.00	
1 partly prepaid institution at	5.00	5.00	
1 partly prepaid institution at	4.00	4.00	
84 partly prepaid institutions at	3.00	252.00	
1 partly prepaid institution at	2.00	2.00	
			326.00
Dues, in addition to the above:			
713 members at $6.00		$4,278.00	
96 institutions at $6.00		576.00	
			4,854.00
Sale of AMERICAN ANTIQUITY			400.00
Transfer from Publication Fund to defray the cost of publishing MEMOIR No. 4			2,000.00
Transfer from Publication Fund to assist in defraying cost of publishing AMERICAN ANTIQUITY			411.82
Collection of outstanding accounts receivable			143.91
Contributions			200.00
Total estimated income			$11,562.19

ESTIMATED EXPENSE

Publishing AMERICAN ANTIQUITY, Vol. XIII, No. 4	$1,334.00[1]	
Publishing AMERICAN ANTIQUITY, Vol. XIV, Nos. 1–4	5,536.00[1]	
Publishing MEMOIR No. 4	2,000.00	
		$ 9,170.00
Planning Committee expenses		972.19
Transfer to Publication Fund, Account MEMOIR No. 5		600.00
Representation of the Society for American Archaeology on the Committee for the Recovery of Archaeological Remains		50.00

[1] Based upon the highest price paid for normal quarterly issues during the past fiscal year. No appreciable reduction is foreseen for the near future.

Editor's account:		
Editorial assistant ($50 per quarter), AMERICAN ANTIQUITY	$ 200.00	
Editorial assistant, MEMOIR No. 5	50.00	
Secretarial assistant ($20.00 per month)	240.00	
Art work ($12.50 per quarter)	50.00	
Postage, telephone, express on galley proof, etc.	50.00	
		$ 590.00
Treasurer's account:		
Secretarial assistance ($15.00 per month)	$ 180.00	
Printing, stationery, etc.	60.00	
Bank and collection charges	15.00	
Postage, billing supplies, etc.	50.00	
		305.00
Miscellaneous expenses:		
Secretary's office	$ 50.00	
President's office	25.00	
Annual meeting	50.00	
Incidentals: notices to members, etc.	50.00	
		175.00
Total estimated expense		$11,562.19

REPORT OF THE SECRETARY

The twelfth annual meeting of the Society for American Archaeology took place on May 16 and 17, 1947, at the University of Michigan, Ann Arbor, Michigan. This meeting was again held in conjunction with that of the Central States Branch of the American Anthropological Association. Minutes of the meeting were printed in AMERICAN ANTIQUITY, Vol. XIII, No. 2 (October, 1947).

During the past year, 1947–48, the following committee and other appointments were made by President Frederick Johnson and approved by the Executive Committee:

Nominating Committee: E. W. Haury, Chairman; W. D. Strong; A. D. Krieger.

Elections Committee: W. R. Wedel, Chairman; P. Drucker; D. Collier.

Viking Fund Award Committee: Frederick Johnson, Chairman; Henry B. Collins, Jr.; Gordon F. Ekholm; E. W. Haury; Robert F. Heizer; Irving Rouse; W. D. Strong.

Auditing Committee: Paul Weer, Chairman; Georg Neumann; W. J Wallace.

Program Committee: James B. Griffin, Chairman.

Local Arrangements Committee: W. C. McKern, Chairman.

Committee on Resolutions: Douglas S. Byers, Chairman; James B. Griffin; John C. McGregor.

Committee on Newport Tower: Frederick Johnson, Chairman; J. O. Brew; Phillip Phillips; Hugh Hencken; Junius Bird; Singleton P. Moorehead, consulting architect.

Representative to the Inter-American Society for Anthropology and Geography: F. H. H. Roberts, Jr.

Delegate to the National Council of Historic Sites and Buildings: J. O. Brew.

In September, 1947, the Council voted to accept an invitation extended by W. C. McKern on behalf of the Milwaukee Public Museum, to hold the next annual meeting of the Society in Milwaukee. The weekend of May 14–15, 1948 was selected as the time for the meeting.

A special meeting of the Society, for non-business purposes, was authorized in conjunction with the meetings of the American Anthropological Association from December 27–29, 1947, in Albuquerque, New Mexico. Dr. E. W. Haury, Chairman; Paul Reiter; and Malcolm Farmer were appointed as the program committee for the Society's sessions. Dr. Ralph Beals was appointed the Society's representative to sit with the Executive Board of the American Anthropological Association.

With this meeting my term of office as Secretary terminates. I should like to recommend, therefore, that at some early date the Society consider the advisability of relieving the President, Secretary, Treasurer, and Editor of the payment of annual membership dues during their terms in office. With the growth and increasing activity of the Society, there is an increasingly heavy drain on the time of these officers, for which they now receive little but the vote of thanks at the end of their terms. Remission of dues would seem to me to be a deserved gesture by the Society to its operating officers.

It has been my privilege to serve the Society as Secretary for six years. In this, my final report to you, I wish to express my deep appreciation of the excellent cooperation extended to me at all times by the officers and members of the organization. I am particularly grateful to the President, the Treasurer, and the Editor, and to their immediate predecessors, for the forebearance they have manifested when the Secretary's frequent and prolonged absences from Washington threw on their shoulders a disproportionate share of the responsibility for keeping the affairs of the Society in order. For my successor in this office, may I ask a continuation of that same spirit of cooperation and understanding from officers and members of the Society.

Respectfully submitted,
WALDO R. WEDEL, *Secretary*

REPORT OF THE TREASURER

ACCOUNT OF MEMBERSHIP

During the fiscal year 1947–48 the total membership increased from 927 to 946. The changes were as follows:

	Active	*Institutional*	*Life*
May 1, 1947	737	177	13
New and reinstated	92	37	0
Dropped and resigned	84	22	0
Deceased	4		
May 1, 1948	741	192	13

We have on our books fifteen exchange and complimentary members, all of which are institutional. These are not included in the above totals.

BALANCE SHEET[1]

Resources

Cash in checking account, general operating balance			$2,376.56
Publication Fund, savings account			3,415.39
Dues receivable	$ 28.00		
Miscellaneous accounts receivable; sale of AMERICAN ANTIQUITY and MEMOIRS	$ 46.50		
Reprints and illustrations	124.60		
		171.10	
			199.10
Total general operating assets			$5,999.05
Cash in checking account, Planning Committee			972.19
Permanent Fund (life membership), savings account			851.80
			$7,815.04

[1] As of May 1, 1948.

Liabilities and Capital

Dues, prepaid	$ 462.50	
Estimated bills payable	3,523.56[2]	
Total liabilities		$3,985.86
Restricted capital	$972.19	
Planning Committee	851.80	
	$1,823.99	
Free capital	2,005.19	
Total capital		3,829.18
		$7,815.04

WORKING FUND

Receipts

Beginning balance brought forward, 5/1/47		$ 3,099.59
Dues and subscriptions:		
Prior years	$ 54.50	
1947–48	5,136.50	
Prepaid	462.50	
	$5,653.50	
Contributions (which includes a subsidy of $1,400.00 from the Andean Institute to help defray cost of publishing MEMOIR #4)	1,412.00	
Sale of AMERICAN ANTIQUITY	579.10	
Reimbursements for reprints	552.28	
Reimbursements for illustrations	150.33	
Receipts of a sundry nature:		
Transfer of funds (general operating balance) from Andover, Mass., to Newburgh, Indiana	$3,169.29	
Received for collection charges and exchange	32.23	
Received for credit on cancelled checks	3.75	
Dues overpayments (on which adjustments were made)	9.50	
Received from committee for the Recovery of Archaeological Remains for lead article in Vol. XII, No. 4	142.60	
Received for excessive alteration charges on galley proof	7.00	
	3,364.37	
Total cash received		11,711.58
Total		$14,811.17

Expenditures

Publishing AMERICAN ANTIQUITY		
Printing	$4,374.89	
Illustrations	633.32	
Distributions	94.63	
Reprints	416.56	
	$5,519.40	
Editor's account		$ 367.98
Treasurer's account		311.52
Expenditures of a sundry nature:		
Refunds for overpayment of dues and adjustments of accounts	$ 41.72	
Printing and distribution of proposed new constitution	42.64	
Transfer of funds (general operating balance), from Andover, Mass., to Newburgh, Indiana	3,169.29	
Expenses of 1947 annual meeting	17.25	
Expenses of President's office	72.58	
Collection and exchange charges	31.49	
Postal notes and checks returned to payor for amendment	23.00	
Dues to the Inter-American Society for Anthropology and Geography	6.00	
Expense involved of transferring Treasurer's office from Andover, Mass. to Newburgh, Indiana	21.89	
Miscellaneous printing	64.66	
Paid to the Committee On International Cooperation in Anthropology for CARE packages for needy European anthropologists	100.00	
Transfer of Andean Institute subsidy to Publication Fund, account MEMOIR #4	1,400.00	
Miscellaneous transfer of funds from Working Fund to Publication Fund, account MEMOIR #5	273.00	
		5,263.52
Total cash paid		$11,462.42
Total cash on hand, 4/30/48		
General operating balance	$2,376.56	
Planning Committee balance	972.19	
		$ 3,348.75

PERMANENT FUND

Balance brought forward, 4/30/47	$ 851.80
Interest computed, 1/1/48	0.00
(No interest was added due to the fact that funds were transferred from Andover, Mass. to Newburgh, Indiana on 9/24/47. First computation will be made on 7/1/48.)	
Balance, 4/30/48	$ 851.80

PUBLICATION FUND

Balance brought forward, 4/30/47	$1,742.39
Transferred from Working Fund (Andean Institute subsidy)	1,400.00
Miscellaneous transfer from Working Fund	273.00
Interest computed 1/1/48	0.00
(No interest was added due to the fact that funds were transferred from Andover, Mass. to Newburgh, Indiana on 9/24/47. First computation will be made on 7/1/48.)	
Balance, 4/30/48	$3,415.39

[2] Estimate broken down as follows:

Publishing AMERICAN ANTIQUITY, Vol. XIII, No. 4	$1,434.00
Publishing MEMOIR No. 4	2,000.00
Reprints from Vol. XIII, No. 3	89.36
	$3,523.36

REPORT OF THE AUDITING COMMITTEE

The undersigned, appointed as the Auditing Committee, report that they have examined the Treasurer's accounts, as submitted for the fiscal year May 1, 1947 to April 30, 1948, and find them correct.

GEORGE NEUMANN
WILLIAM WALLACE
PAUL WEER, *Chairman*

REPORT OF THE EDITOR

During the year 1947–48 the Society published, or is in the process of publishing, Vol. XIII of AMERICAN ANTIQUITY and one MEMOIR, No. 4. The latter consists of "A Reappraisal of Peruvian Archaeology," a symposium by Wendell C. Bennett and others. Its publication has been made possible by a grant from the Viking Fund to the Institute of Andean Research, which sponsored the symposium.

In order that MEMOIR 4 could appear during the past fiscal year in connection with Vol. XIII of AMERICAN ANTIQUITY, it has been necessary to delay distribution of the April issue of the journal. This final issue of the year will not be mailed until the MEMOIR is ready, probably during the first part of June.

Volume XIII is by far the largest yet published, consisting of 360 pages, or 56 more than the previous high. The MEMOIR will contain 72 figures and about 128 pages.

Most of the increase in the size of the journal was effected in the first two issues of the year, which amounted respectively to 96 and 104 pages. These were deliberately enlarged for two reasons: (1) to reduce the large backlog of manuscripts as quickly as possible, thereby ensuring more prompt publication, and (2) to do this before our printers should find it necessary to raise the prices again.

These objectives have been accomplished. With publication of the January issue, No. 3 of the year, we eliminated the backlog and have since been operating entirely on a current basis. There is still space for a number of articles in the October issue (the July number being already in press).

In November, the Banta Publishing Co. notified us that they would probably have to increase their prices with the January issue. When the time came, however, they informed us that the increase would be postponed until summer and that they would make every effort to avoid it then. The cost of engravings, which are done by another concern, has, however, increased since the first of the year.

The number of manuscripts submitted for publication as main articles and in "Facts and Comments" has declined one-third during the past year from 62 to 44. Of these, we accepted 33 on receipt and 6 after revision, transferred one to another publication, and rejected 4.

If the contributions continue to come in at this rate, we shall have no difficulty handling them, even in the event of a further rise in printing costs. Our difficulty, if any, is more likely to be the reverse; we have already had to solicit articles in order to fill the July number.

A call for further contributions is therefore in order. We would particularly welcome preliminary reports of field work or accounts of work in progress. Now that the backlog has been eliminated, there is no need to divert these to other journals in order to insure prompt publication.

Contrary to the situation last year, it appears that the pressure upon the MEMOIR series will be heavier than on AMERICAN ANTIQUITY. Last year, we received only two manuscripts for consideration as MEMOIRS, the Peruvian symposium now in press and "A Study of Archaeology" by Walter Taylor, which was simultaneously submitted to the American Anthropological Association and is being published by them. While no other manuscripts are actually in hand, we have received inquiries from five authors who have completed or expect to complete in the near future reports suitable for publication as MEMOIRS.

Our plan is to publish a single MEMOIR during the coming year, as during the past two. It is doubtful that the press would be able to handle more than this, even if all other arrangements could be made.

In conclusion, the Editor wishes to express his appreciation to the Associate Editor, James B. Griffin, who is handling the "Book Reviews" and "Notes and News." As a result of Griffin's activity during the past year, both these departments have expanded considerably in size and have attracted favorable comment.

Respectfully submitted,
IRVING ROUSE, *Editor*

NOTES AND NEWS

BRIEF OF SYMPOSIUM ON THE "SOUTHERN CULT"

At the request of Dr. Fay-Cooper Cole, program chairman for the twelfth annual meeting of the Society for American Archaeology, archaeologists especially concerned with the problem of the "Southern Cult" participated in a round table discussion of the subject on the afternoon of May 17, 1947 at the University of Michigan, Ann Arbor.[1] Dr. James B. Griffin of the University of Michigan led the symposium with the participation of the following individuals:

Bennett, John W., Department of Sociology, Ohio University, Columbus, Ohio.
Cole, Fay-Cooper, Department of Anthropology, University of Chicago, Chicago, Illinois.
De Laguna, Frederica, Department of Anthropology, Bryn Mawr College, Bryn Mawr, Pennsylvania.
Griffin, James B., Museum of Anthropology, University of Michigan, Ann Arbor, Michigan.
Holder, Preston, Department of Anthropology, Columbia University, New York, New York.
Kneberg, Madeline, Department of Anthropology, University of Tennessee, Knoxville, Tennessee.
Kraus, Bertram S., Department of Anthropology, University of Chicago, Chicago, Illinois.
Krieger, Alex D., Department of Anthropology, University of Texas, Austin, Texas.
Lewis, T. M. N., Department of Anthropology, University of Tennessee, Knoxville, Tennessee.
MacNeish, Richard S., Museum of Anthropology, University of Michigan, Ann Arbor, Michigan.
McKern, W. C., Milwaukee Public Museum, Milwaukee, Wisconsin.
Orr, Kenneth G., Department of Anthropology, University of Chicago, Chicago, Illinois.
Phillips, Philip, Peabody Museum, Harvard University, Cambridge, Massachusetts.
Quimby, George I., Jr., Chicago Natural History Museum, Chicago, Illinois.
Waring, A. J., Jr., DeRenne Apartments, Savannah, Georgia.

The symposium was an informal discussion of major problems of the cultural phenomenon of southeastern United States archaeology referred to in the literature as the "Prehistoric Ceremonial Complex," "Buzzard Cult," or "Southern Cult." Emphasis was placed upon (1) concepts and definitions regarding the nature of the "Cult"; (2) distribution of the "Cult" complex in time and space, and (3) origin(s) of the "Cult" complex. Although only two hours could be given to the symposium, the time was sufficient to allow the participants to outline their views and indicate major agreements and differences of opinion. The "Cult" specialists summarized the status of "Cult" research in particular areas, after which the symposium audience took part in a general discussion. The discussion aroused a high degree of interest, and the group was enthusiastic over the possibility of arriving at a comprehensive interpretation of the "Cult" phenomenon. A summary of the participants' comments follows.[2]

Griffin: Most Eastern archaeologists have commented on the subject of this symposium, ranging from Fowke and Holmes to present day workers. Several of the main contributors to the study of the "Southern Cult" are here today. I suggest that discussions start first with each contributor giving his original idea of the complex after which his present concepts may be presented. Secondly, we will attempt to get an idea of the various manifestations of the "Cult" with emphasis on its chronological position and the manner in which it is integrated into the cultural complex of the unit in which it is found. Lastly, we will try to interpret these data. Of those present Philip Phillips has made the earliest modern statement on the subject.[3] We will call on him first for a statement of his original position.

Phillips: Spinden was actually the first to make the serious suggestion of a cult idea in connection with the Southeastern complex—in this case a "warrior cult."[4] My interpretation in 1940 suggested a widespread distribution of Mexican-like traits carried rapidly into the Southeast by a relatively few people. My error was perhaps in the use of the word "Cult" to apply to the manifestation. I now feel that we have little or no conception of the true meaning of the material called "Southern Cult."

Griffin: Ford and Willey[5] also accepted the idea of Mexican influence and were tempted to consider the complex as a cult . . . in this case the result of a reaction to rapid decimation of Southeastern populations in the early historic period. The "Cult" was thought to have a little relationship to earlier ceremonial manifestations:

> "Toward the end of this stage it can be seen that a marked decrease in population is occurring. In areas where sites of the early and late Middle Mississippian cultures must have numbered in the thousands, not an Indian was to be found in the latter part of the seventeenth century when the French and English explorers entered the region. This is particularly true for the Mississippi and Ohio valleys and for much of the country covered by the Tennessee-Cumberland and Lamar cultures.
>
> "During the Temple Mound II stage there appears to have arisen a curious cult which shows little relationship to anything which has previously transpired, and which spread rapidly over the entire Mississippi Valley area, although most common in the south. The paraphernalia from which the presence of this cult is deduced show a high degree of similarity all over the area. Included are such items as conch shell masks marked with the winged or "weeping" eye symbol; copper and shell pendants with circles and crosses engraved, repousse, or with background cut out; engraved conch shells or thin copper plates on which are depicted dancing figures wearing eagle masks, carrying a human head in one hand and a peculiar shaped baton in the other; shell gorgets showing fighting turkey cocks or rattlesnakes; monolithic stone axes; large stone batons; the horned and winged rattlesnakes engraved on circular paint

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[1] In the report of the 1947 meeting (this journal, Vol. XIII, No. 2, p. 198) it was stated that the account of the symposium would be published in the January, 1948 issue. There has been a delay, and the account now appears simultaneously with the report of the 1948 meeting. *Editor.*

[2] We are indebted to Kenneth G. Orr for keeping notes on the symposium.

[3] Philip Phillips, "Middle American Influences on the Archaeology of the Southeastern United States," *The Maya and Their Neighbors*, New York City: D. Appleton-Century Co., 1940.

[4] Herbert J. Spinden, "Indian Symbolism," *Introduction to American Indian Art*, Pt. 2, New York: Exposition of Indian Tribal Arts, 1931.

[5] J. A. Ford and G. R. Willey, "An Interpretation of the Prehistory of the Eastern United States," *American Anthropologist*, n.s., Vol. 43, No. 3, pp. 325–63, Menasha, 1941.

palettes or on pottery; and fairly large stone figures with negroid faces and characteristic arrangement of hair in two rolls on top of the head.[6]

"Some items of this paraphernalia have been found at nearly every site of this period which has been thoroughly investigated. However, some of the larger centers have become well known for the quantity of these materials which they have yielded. Outstanding are the Kincaid and Angel sites near the mouth of the Ohio River, the Etowah site in north Georgia, Moundville in central Alabama, and Spiro in eastern Oklahoma. Although the cult which spread these objects probably flourished about 1600, there are some finds showing that certain features, at least, lasted until after 1700.

"The suggestion of Mexican influence in these objects has been recognized. Aside from that, there is a great temptation to interpret these objects as evidence of some sort of religious revival quite similar in purpose to the well known Ghost Dance cult of the Plains. This, also, may be the evidence of a reaction to a rapid decimation of the population of a formerly vigorous and thriving culture."

Later, I made the suggestion that the "Cult" did not represent a declining culture but rather the apogee of cultural achievement in the Southeast, and that the DeLuna expedition may have had a hand in its development.[7] This was based on the hypothesis that the "Cult" art had its closest resemblances in Mexico to Mixteca-Puebla art, and since the DeLuna retinue included almost a thousand Indians from precisely this area and period in Mexico, we then had a suggestive combination which might explain its appearance in the Southeast. Waring and Holder's paper[8] was the next to be published although their thesis was well known to workers in the Southeast and was incorporated in Ford and Willey's earlier paper.

Waring: Holder and I were initially impressed by the close correspondence between groups of materials from the Spiro Mound collection at the Heye Museum and material from Etowah and Moundville. It was obvious that this material was ceremonial paraphernalia. While there was much divergence in style and use of motifs, there was obviously a basic group of elements which was common to the entire area. None of these elements occurred in earlier materials, and all of them seemed to function on a symbolic level.

When we examined the rest of the material culture in which these elements occurred, there was little or no correspondence. Since we had a group of ceremonial motifs and paraphernalia which showed a striking correspondence as opposed to a series of dissimilar cultural matrices in which they occurred, and since no developmental forms could be demonstrated, we concluded that we were dealing with a very special ceremonial phenomenon which we termed (cautiously and rather clumsily) "a Southeastern ceremonial complex." We implied that the core of special motifs and ceremonial objects reflected a rather intense and short-lived period of ceremonial activity which—while it may well have drawn from earlier ceremonial levels—was a special and unique phenomenon in itself and was best explained by a cult hypothesis.

Dr. Griffin has asked for a statement of present attitude. Our present attitude is essentially the same as expressed in the 1945 paper.

Holder: Waring and I attempted to pull together the ceremonial complex materials with a minimum of interpretation, other than to "knock" a few apparently inaccurate ideas that had come into the literature. Waring has modestly refrained from mentioning a manuscript which he has completed on a further study of the "Cult" and which gives added support to our original position.

Griffin: At this point it would be profitable to read the summary paragraph of Waring and Holder's article:

"We feel that it is possible to account for all the above facts by the following hypothesis: There existed in the prehistoric Southeast a highly-developed cult or cult complex, integrated with and fundamentally dependent upon a horticultural base. This cult was synthesized within the southeastern United States in a single community or restricted group of communities at a relatively late date from elements introduced from Middle America. This integration probably took place in the Middle Mississippi Basin. From this center the cult spread rapidly, crossing tribal boundaries, flowered abruptly and passed almost as quickly, reaching historic levels only in an attenuated form. Local variations in the complex are explicable in terms of the previous ceremonial life and basic economics of the subareas under consideration. These variations, the attenuated forms and the probable nature of the original cult will be considered in a subsequent paper."

Whereas Waring and Holder have stressed the possible introduction of "Cult" elements from Middle America, Krieger has emphasized the possible indigenous development of many of the elements. He has felt that Middle American connections have been over-stated.[9]

Krieger: My ideas on the "cult" developed in connection with research on the Caddoan archaeological area, where the ceremonial complex appears principally in the Spiro and Sanders Foci of the Gibson Aspect. Caddoan area research[10] indicated an earlier date for the "Cult" than had so far been advanced and suggested that it need not have been of Mexican origin. It was also noted that, wherever the "Cult" occurred widely spread in the Southeast, there were significantly different style or subject emphases at the various centers. This strongly suggests that we are dealing with a series of related cults rather than a single "Cult." Moundville doesn't show the same skill in execution as Etowah and Spiro. The stylistic treatment of "Cult" art appeared in perfected form in the West, notably at the Spiro site. I further suggested in the *Anthropologist* that the perfected art styles and relatively sudden appearance of decorated shells in the Southeast may have been due to a transfer from a perishable material (wood) to shell. A stylistic comparison with Middle American cultures showed much closer agreement with Late Empire Maya than with Mexico proper. It is possible to trace Puebloan chronology across Texas by means of trade pottery found in sites dating later than Spiro. This horizon, the Fulton Aspect, is thus dated about 1400 to 1600 A.D. Spiro was earlier than this, and probably closer to 1300 or possibly earlier. MacNeish and Du Solier pointed out specific similarities between the Caddoan area units and traits of Huasteca V period at the First Caddoan symposium. This period dates about 1000 to 1150 or per-

[6] A. J. Waring, Jr., and Preston Holder, manuscript to be published in the *American Anthropologist*.

[7] J. B. Griffin, "The DeLuna Expedition and the 'Buzzard Cult' in the Southeast," *Journal of the Washington Academy of Sciences*, Vol. 34, No. 9, pp. 299–303, Washington, 1944.

[8] A. J. Waring, Jr., and P. Holder, "Prehistoric Ceremonial Complex in the Southeastern United States," *American Anthropologist*, n.s., Vol. 47, No. 1, pp. 1–31, Menasha, 1945.

[9] A. D. Krieger, "An Inquiry in a Supposed Mexican Influence on a Prehistoric 'Cult' in the Southern United States," *American Anthropologist*, n.s., Vol. 47, pp. 483–515, Menasha, 1945.

[10] A. D. Krieger, "The First Symposium on the Caddoan Archaeological Area," AMERICAN ANTIQUITY, Vol. 12, No. 3, pp. 198–207, 1947.

haps 1200, and we cannot say yet whether Spiro goes back to this date, or Huasteca V survived a little later. However, I believe that most of the "Cult" features originated in Hopewellian-Adena cultures, and several Huastecan elements were added to an already developed culture at Spiro.

Phillips: I suggest we drop the term "cult." This term has been useful to focus attention on the phenomenon. We now know, however, that we are dealing with a network of complex concepts for which the term "cult" is an oversimplification. Vaillant's "Q" complex[11] is a similar idea which has outlived its usefulness.

Concerning the assumption that the "Cult" is closely connected with the Mississippi valley area—it is strange that in the 1941 survey of the lower valley very few traits associated with the "Cult" were found. In the late Alpika Focus are a limited number of traits apparently associated with death ceremonies.

Krieger: In deriving the "Cult" from Mexico we also have the geographic problem of a gap between the Caddoan and Huastecan areas. No Middle American cultures were diffused across Texas, and any movements must have taken place rapidly.

Griffin: It was early apparent to me that a comparison of the "Cult" with Mexican materials was necessary before any conclusions could be drawn regarding possible Mexican origin. Consequently in the spring of 1946 I departed for Mexico City with high hopes and my family. I came back six months later with my family. An examination of Mixteca-Puebla art to see if a style connection could be established proved disappointing. Du Solier's ceramic traits from San Luis Potosi, however, are often reminiscent of Caddoan area traits. A joint paper by Du Solier, Krieger, and Griffin on these similarities has appeared in the July, 1947 issue of AMERICAN ANTIQUITY.[12] The technique of engraving pottery may have been introduced into east Texas from the Huasteca area at about 1000 or 1100 A.D. There were also further introductions of traits at later times. MacNeish's survey of the Tamaulipus area in 1946 resulted in some ideas on this subject.

MacNeish: The survey of the coastal area of Tamaulipus had as a main problem the origin of Mexican-like traits of the Southeast, in particular the problem of the origin of the "Cult." A series of non-agricultural camp sites of the Huasteca V and VI time period were worked. No sherds were found earlier than Period V. Huasteca sherds were found intrusive in non-Huasteca sites. Concerning the spread of Huasteca traits to the north, it is interesting to note that Huasteca pottery is found on the Gulf Coast as far north as Brownsville, and a carved stone head of Huasteca style was found not far from Forth Worth, Texas. Evidence of reciprocal exchange of material between Texas groups and those of the Tamaulipus area is seen in the presence of projectile points from north and central Texas in Tamaulipus sites. It is also probable that clay elbow-pipes with bowl projections were introduced into the Huasteca area from the Caddoan area. There are no less than 53 specific resemblances shared by the Huasteca and Caddoan areas. These traits occur in Period V and VI and many are associated with the "Cult" in the Caddoan area.

Krieger's dating of the Caddoan area "Cult" units as early as 1300 suggests that the "Cult" may be earlier at Spiro and later in the eastern centers. A Moundville date of post-1550 is suggested through Robert Bell's tree ring dates for Kincaid, where Moundville-like sherds occurred in Middle and Late period strata. It looks as though the complex did not spread rapidly, as we might expect of a "Cult," but took several hundred years to travel from west to east.

Griffin: Krieger, would you state when you believe the "Cult" appears and how much of the aspect it represents?

Krieger: Two general horizons have been recognized for the "Caddoan" culture remains. The earlier is the Gibson Aspect and includes the Spiro, Sanders, Haley, Gahagan, and Alto foci. The later is the Fulton Aspect, which consists of eleven foci, some of which are directly connected with historic Caddoan tribes. The foci appear to be local divisions of Caddoan-speaking units. It may be questioned that the Gibson Aspect represents actual Caddoans for there are many differences in the two horizons; however, there are many continuities in ceramics. Practically all of the "Cult" material is from the Spiro and Sanders sites. In the Fulton Aspect, only very simple motifs (cross, voluted circles) appear in shell gorgets, and only rarely.

Griffin: Kenneth Orr will summarize the "Cult" as found at the Spiro site in eastern Oklahoma.

Orr: The importance of the Spiro site in a consideration of the "Southern Cult" lies in the profusion of "Cult" material, the possibility that the "Cult" expression is earlier here than elsewhere, and the fact that the site had been occupied both prior and subsequent to the appearance of the "Cult." A preliminary analysis revealed Early, Middle, and Late Components and a Fort Coffee Focus—a sequence interpreted as a cultural continuum from late Burial Mound through historic cultures.[13] Subsequent research has tended to support the original analysis while refining the interpretation of the Middle Spiro Component or "Cult" period. Most important has been the realization that the "Cult" period occupied a relatively long time period during which considerable stylistic change is evident in the "Cult" paraphernalia and associations. Shell is rare in the early part of the Middle component, and the engraved designs are crude and incipient. The full florescence of shell engraving does not take place until the latter part of the "Cult" period. The early "Cult" complex is very similar to that of the Gahagan site and is associated with trade vessels having loop handles suggestive of early Middle Mississippi style. The late "Cult" complex is very similar to that of the Sanders site of northeastern Texas, and is associated with strap handled vessels and blank-faced effigy bottles suggestive of late Middle Mississippi styles. Projectile points of Cahokia-site style and flint are associated with "Cult" material. In the Late Spiro Component the "Cult" abruptly languishes and the elaborate shell and stone industries dis-

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[11] G. C. Vaillant, "Some Resemblances in Ceramics of Central and North America," *Medallion Papers*, No. 12, Globe: Gila Pueblo, 1932.

[12] Wilfredo Du Solier, Alex D. Krieger, and James B. Griffin, "The Archaeological Zone of Buena Vista, Huaxcama, San Luis Potosí, Mexico," AMERICAN ANTIQUITY, Vol. XIII, No. 1, pp. 15–32, 1947.

[13] K. G. Orr, "The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report," AMERICAN ANTIQUITY, Vol. 11, No. 4, pp. 228–56, 1946.

appear. "Cult" symbols continue in modified form on the ceramics of the Fort Coffee Focus of the (assumed) historic period.

The "Cult" at Spiro comprises the changing ceremonial practices of the Middle Spiro Component. An earlier and later period are clearly seen. Hopewellian-like influences are seen in the earlier "Cult" period along with some Middle American traits. It may be that additional influence from Middle America stimulated development of the later "Cult" period, although this could have been an indigenous florescence. The later "Cult" period might well have been contemporary with the later "Cult" phases of Moundville and Etowah. The rapid disappearance of the "Cult's" main manifestations prior to the historic period in the Caddoan area suggests a major shift in ceremonial ideology but not basic culture. The "Cult" appears to survive in purer form among the historic Muskogean tribe.

Waring: There is some suggestive evidence from Mount Royal on the St. John's River, Florida, that the "Cult" material there dates earlier than the great elaboration at Etowah. In my sherd collection made on the surface of the mound are several typical sherds of Savannah Fine Cord marked (clay tempered). If these are coeval with the mound building it would place Mt. Royal approximately contemporaneous with Macon Plateau. Interestingly enough, many traits at Mt. Royal suggest Hopewellian survivals, as do many at Spiro. In view of such reasonable doubt, it is still a little early to be talking of origins, when we are still trying to define what the Complex represents.

Griffin: What about the "Cult" material at Kincaid?

Cole: "Cult" materials may have been originally present at Kincaid, and decomposed due to poor conditions of preservation. Only one conch shell was found; and there were few other indications of the "Cult."

Bennett: The "Cult" seems to be prevalent at the closely related Angel site, southwestern Indiana. A high proportion of negative-painted plates, bowls, and bottles bearing "Cult" symbols were found at Angel. This site dates with late Kincaid, post 1600.

Griffin: May we have a comment on the eastern Tennessee situation?

Kneberg: A dating of about 1400 to 1450 is suggested in eastern Tennessee for the "Cult." Certain elements, however, appear very early. Conch shell vessels, for example, appear in the Archaic period. If the "Cult" can be connected with Muskogean-speaking peoples, it is probably related to the Creek busk ceremonial. The historic Creeks had copper plates, shell gorgets, and four mythological snakes.

Griffin: What about the "Cult" in Georgia?

Waring: It is difficult to say precisely where the "Cult" fits in. I believe, however, that (Griffin to the contrary) it appears post-Macon Plateau and pre-Lamar. Since Lamar is fully developed by the late sixteenth century (Spanish contact material at Colonel's Island, Georgia coast) it would place the greatest "Cult" elaboration as prior to that date. Despite the manner in which "Cult" material disappears from the archaeology, there can be little doubt that many elements survived among Muskogean-speaking peoples.

Holder: In seeking possible survivals of "Cult" concepts we must not overlook the horticultural groups of the eastern Plains. An ethnological study of such groups might illuminate the archaeological picture.

McKern: I should like to hear a definition of "cult." What is implied in your use of this term?

Griffin: Waring and Holder in their 1945 paper define the use of the term as it is now generally applied.

Orr: The concept of "cult" certainly has a variety of connotations. In its narrower meaning it is probably not adequate as an expression of the phenomenon with which we are dealing.

Phillips: "Cult" has the connotation of a single concept. It is apparent that our ceremonial complex consists of a series of concepts.

Holder: We had used the term "complex" not "cult." The "cult" idea is just a convenient way of referring to the problem. In applying it now we may be "jumping the gun" a bit.

Quimby: How does the "Cult" in the East compare with that in the West? Does the Eastern manifestation cling together better—or does the Western?

Waring: Three sub-areas of the "Cult" have been recognized: (1) Tennessee-Cumberland and Etowah area, (2) Moundville area, (3) Caddoan area. There are definite tricks of style by which a preponderance of products of each area can be recognized. There is no confusing eastern and the bulk of western material. Individual pieces, however, would fit equally well into either area.

De Laguna: I am wondering if our thinking is perhaps not unduly influenced by the constant use of the term "cult." A cult is not a whole religion which dominates or connects with all of cultural life—it is much more restricted in emphasis. It appears that we are dealing with a major series of religious ideas and institutions here. Do we have any evidence that doesn't fit the idea of a religious interpretation?

Orr: There is little doubt at Spiro that the "Cult" materials are connected with non-utilitarian, hence "ceremonial" concepts. One of the most difficult problems in analyzing the site was that of tying-in the "Cult" objects of the burials with the house features of the village. The village houses contained none of the "cult" material with the exception of occasional fragments.

Waring: The same sharp separation of utilitarian and ceremonial is seen between Georgia "Cult" material and the rest of the material culture.

Holder: Class stratification, clans, and class prerogatives are probably associated with the "Cult" at some sites. The association of the "Cult" material with specially differentiated burial practices would indicate something of this sort.

Quimby: Were the Natchez supposed to have the "Cult"?

Waring: No. Not as defined for the purposes of the present discussion.

McKern: Some of the symbols associated with this complex appear to be religious. However, we must remember that the same symbol might have different interpretations with different cultural manifestations. The thunderbird, for example, was a common symbol over a wide area, but had

different mythological and religious significance in various cultural settings.

Griffin: A short summary of our present opinions might be attempted: We are dealing with a ceremonial complex, which might be termed "Cult" as a convenience, occurring widely over the southeastern United States. There is some evidence which suggests that the Spiro Focus development begins earlier than the strong "Cult" development east of the Mississippi. Mexican influence is thought to have stimulated part, but by no means all, of the complex. Certain striking features appear to have come in from the Huasteca area. A common stratum of ideas from Spiro to Etowah merges with local cultures producing distinguishable local variations.

The pressing needs at the present time are for a study of the cultural and chronological position of particular items of the complex, of the various regional and site expressions of the complex, and a searching study of the possibility of "Cult" continuation into the ethnographic present. We also need someone to act as a clearing house and to aid in directing research. I propose Dr. Waring to act in this capacity. Would you, Dr. Waring, care to help in this manner?

Waring: I will be glad to do so. (*A. J. Waring.*)

PACIFIC COAST

On August 1, 1948 the California Archaeological Survey was instituted. Supporting funds are from the state legislature as part of the regular University of California budget, and are adequate to ensure a considerable and continuous research program. Named as Archaeologist is Franklin Fenenga, and Assistant Archaeologist, Francis Riddell. Close cooperation is envisaged with research institutions in the state other than the university. There exists only a single local and no statewide archaeological society in California, although there are numerous individuals interested in archaeology and at least ten institutions which emphasize this subject and which could sponsor such an organization. It is greatly to be desired that this need be met, and the Survey is willing to lend all possible aid toward such an end.

The first project of the Survey was the excavation of several sites in the Kings River Canyon in the area to be inundated by the Corps of Engineers' Pine Flat Reservoir. This work was done at the request of the Smithsonian Institution River Basin Surveys in cooperation with the National Park Service. The main site excavated was stratified, and a preliminary report on the results is now in preparation. Salvage archaeology in the Isabella Reservoir area (Kern River) will begin about October 15, followed by the excavation of an important cave site in Lassen County which has recently been the object of vandalism. The rainy winter will be spent in the Berkeley headquarters compiling a file and plotting on master file maps sites which are on record, but exist in the form of separate survey projects and miscellaneous records which have been accumulating for the past fifty years. A publication series entitled "Reports of the California Archaeological Survey" with mimeographed text and offset-printed illustrations is in the making, and several brief papers are now in press.

In the first summer session (June 20 to July 31), R. F. Heizer led a student party of eight on a university sponsored and financed expedition to Humboldt County on the northwestern California coast. Students were enrolled and received four units of academic credit for the work. The site excavated was a shellmound at Patrick's Point reaching a maximum depth of 13 feet, which proved to be culturally stratified. In addition to this main excavation, a large number of other sites were located, and some testing was done in the more promising ones. Two culture periods are clearly apparent as a result of the survey and excavations. The large and well-documented Humboldt Bay collection of H. H. Stuart in Eureka was studied, and from it comes considerable insight into the archaeology of the ethnographic Wiyot area which amplifies the data presented by Loud in 1918. Among other items of interest in the Stuart material are a number of fired clay female figurines similar to those from Shasta and Marin County reported on in Volume IX of AMERICAN ANTIQUITY.

Several students from the University of California (Berkeley) assisted in River Basin Survey work on the Columbia, Snake, and Rogue rivers, the work being under the direction of Dr. Philip Drucker of the Smithsonian Institution. Douglas Osborne, now advanced to candidacy for the Ph.D. at Berkeley, will be in charge of the River Basin Survey Pacific Coast laboratory at Eugene after Dr. Drucker's return to the East for the winter.

Adan Treganza, graduate student in the Department of Anthropology and Assistant Professor of Anthropology at San Francisco State College, and Agnes Bierman, graduate student in anthropology at the University of California (Los Angeles), jointly supervised a second season of investigation in the Topanga Canyon site in Los Angeles County. The field crew, composed of 16 students from the Berkeley and Los Angeles Departments of Anthropology of the university, secured a large collection of heavy-duty core and flake tools, conducted site survey and testing operations, and are now in a position to place the Topanga culture remains in a relative (not dated) chronology. The full report on the 1947 dig is now completed and should shortly go to press.

Between the months of February and July, 1948, the second expedition of Associates in Tropical Biogeography of the University of California engaged in field work on the peninsula of Baja California. Under the program, Mr. Edwin Hammond investigated the physiography of the Cape Region, and Mr. Robert Peters made collections for a plant geography of the same area. William C. Massey, assisted by his wife, continued the archaeological reconnaissance with a survey of central and southern Baja California. Three caves were excavated south of La Paz with the assistance of local workers. Designed to increase knowledge of the Cerro Cuevoso physical type, these excavations added 24 burials to the series. Newly reported artifacts include worked animal skins, coiled basketry, netting, and new ornament types. All collections have generously been released for study to the University of California by the Mexican Government. W. C. Massey is now studying these collections. Dr. Juan Comas will arrive from Mexico early in 1949 to analyze the skeletal material. Continued work is planned by the Associates in Baja California for the coming year.

Mr. Stephen Cappannari, who spent two weeks among

the Kawaiisu tribe of Kern County checking and amplifying his last summer's investigations, did incidental archaeological collecting at sites identified as historic villages by his informants. Apparently recent sites in this area produce pottery of the type named by Gayton as Yokuts-Mono. The Pine Flat excavations by Fenenga of the California Archaeological Survey show conclusively by stratigraphy that in the King's River area the same ceramic type occurs in late prehistoric and historic deposits.

Professor T. D. McCown, Curator of the Museum of Anthropology, attended the Point of Pines conference in August as representative of the University of California. Dr. John H. Rowe has recently joined the staff of the University of California, coming here from a post in Popoyan, Colombia, where he was stationed as representative of the Institute of Social Anthropology, Smithsonian Institution. E. W. Gifford, Director of the Museum of Anthropology, is at present engaged in study of the Fijian archaeological material collected by him last year. R. F. Heizer has been named Director of the California Archaeological Survey. Dr. Ann Gayton Spier has joined the faculty of the Department of Decorative Art where she will continue the several special courses which were instituted and given by Dr. Lila O'Neale.

Mr. Malcolm Farmer, Director of the San Diego Museum of Man, reports that work is underway on the Jessup Archery Room of the museum and plans are in process on the rearrangement of the Physical Anthropology Exhibits. The Jessup Archery Room will have an introductory section on weapons of Asia, Europe, Africa, Oceania, North, Central, and South America. Approximately three months will be spent in arranging the room and installing exhibits. Work on the rearrangement of the storage rooms of the museum is still in process. Each room has work and study space as well as space for the collections. Separate rooms are devoted to Physical Anthropology, Basketry, Pottery, California Archaeology, and General Archaeology and Ethnography. A restudy of the archaeological material from the La Jolla area is in process. It is hoped that a publication on the area can be completed this winter.

Miss Ruth D. Simpson, Assistant Curator of the Southwest Museum, reports that under the leadership of Mr. M. R. Harrington, the Southwest Museum expedition has begun its second session at the Stahl site north of Little Lake, California. Among the expedition's most important finds last spring were: (1) Pinto dart points in deep deposits associated with Silver Lake, Lake Mohave, single-shouldered and other ancient projectile types; (2) completely mineralized fragments of human and large animal bones, some of these also in deep deposits; (3) a house floor, 7½ ft. by 12½ ft., surrounded by post holes. (This is believed to be the oldest dwelling yet found in North America, with the exception of those in caves.) Work is being directed by Mr. M. R. Harrington, assisted by Mr. Stahl who found this particular site, Mr. R. Sayles, Lt. S. M. Wheeler, Miss R. D. Simpson, and volunteer workers. Mr. Harrington hopes to obtain additional information pertaining to Pinto culture, and to the relationship between Pinto artifacts and those of other ancient complexes which have been found in association with Pinto material at the Stahl site.

Dr. Luther S. Cressman, Chairman of the Department of Anthropology at the University of Oregon, reports that his organization conducted a six weeks' field trip on the Klamath Indian Reservation. The party consisted of twenty; two, instructors and the remainder, students. Both men and women students were in the party. As in the past the research program was integrated with the regular summer session of the university and the students received academic credit for their work. Funds in support of the work came from the university, the American Philosophical Society, the Social Science Research Council, and student fees. One section of the party carried out a straight archaeological program, and a small group undertook an acculturation study. L. S. Cressman was in charge of the main project and the archaeological part of the program, while Dr. R. F. Spencer directed the acculturation study.

The archaeological program, which represented the second season's work was a continuation of the study of Klamath prehistory and its relation to the Post-pluvial cultures of the northern Great Basin. The excavation of Medicine Rock cave on the Sprague River was completed and work carried out on house pit excavation at the Kawumkan Springs village site. Mr. Charles Reetz, a graduate student, and Mrs. Reetz continued work at the latter site during August and did some reconnaissance at the Klamath Marsh. The Kawumkan Springs site is of particular importance to our problem because it contains house pits from the historic and possibly protohistoric periods dug into an earlier midden. This midden, in some places five feet deep, is made up of very fine soil mixed with disintegrated organic materials and must represent a very long period of use to have been built up to this depth. It appears, though it is not clear at present, that there was midden occupation after some of the house pits were abandoned. It will require further excavation to verify this point. There is also strong indication that earlier house pits were simply cleared out and then reworked to be used by later occupants. Some of the pits have a saucer-shaped bottom while others are flat. In some cases the floors were extremely difficult to isolate because the pits had been dug in the midden, which by previous use had become very compact. One house had a series of two benches running halfway around it on the north side, and these were padded with a fine matted material, probably reeds of some sort, although the material has not yet been identified. Two houses showed a rectangular pattern of roof post supports while others had no evidence of post holes.

There is insufficient material at present to determine if there is any typological difference between the artifacts from the house pits and the underlying midden (explored by trenches run out from the pit walls and pits sunk through the house floors) but what we have suggests a difference in projectile points and in grinding tools. Further excavations should verify this possible difference.

Kawumkan Springs covers several acres and is fed by many springs from which the water comes up under pressure until it bubbles above the surface. It never has been known to freeze over, so it is an ideal camp site. The water flows into the Sprague River. It is full of large trout and mussels are to be found along the river and the sloughs in the vicinity. The mussel shells scattered throughout the

midden show their use as a food article. Forests reach to a few hundred yards of the spring and provide excellent hunting. The area is an ideal habitation site, and in view of the stability of the Klamath region environment, there has probably been little ecological change since the end of the Pleistocene.

It is planned to continue the project next summer both in the midden area and on the Klamath Marsh. There is a good chance that a third season's work will give pretty definite answers to the problems under study.

The completion of the excavation of Medicine Rock Cave showed that the occupation of the cave had started before the deposition there of pumice from Mt. Mazuma (Crater Lake). The pumice represents a secondary deposition, and there is no doubt but that it was deposited by the river. However, the exposure of the pumice stratum along a profile 10 meters long, showed conclusively that the deposition was sudden. The pumice is clean; it begins suddenly and stops as suddenly.

Dr. Ira Allison, Professor of Geology at Oregon State College, studied the profile of the trench, and is of the opinion that the deposition of the pumice, even though secondary, can be closely correlated with the original deposition.

The nature of the deposits in the cave show that it was used in the main as a camp for fishing parties. The artifacts are few and there is none of the usual household debris common to the occupied caves of the Basin. One large projectile point came from below the pumice and it is of the type and size characteristic of the atlatl points from the Oregon caves.

Dr. Spencer's party worked on the problem of acculturation through the medium of life histories. This is the first time that both ethnology and archaeology have been carried on as activities of the University of Oregon field camps, but it is planned to continue the joint programs both as research and as student training devices.

Dr. Philip Drucker reports that the Pacific Coast Area Office of the River Basin Surveys, Smithsonian Institution, continued its investigation of reservoir areas during the summer field season. Principal emphasis was put on work in the Columbia Basin, because of the high priorities assigned reservoir projects there. A permanent field office and laboratory were established in space made available by the University of Oregon, in Eugene, Oregon. From this base, survey parties and laboratory staff were recruited from various West Coast universities. G. L. Coale, F. A. Riddell, H. S. Riddell, Jr., D. Osborne (transferred to the McNary excavation project), I. Shiner, and W. W. Burd participated in the field surveys, and Miss B. Fullmer, and later, L. Collins and H. Zakoji, formed the laboratory staff.

The results of the survey work during this season and the preceding one have a twofold value. Their primary aim is of course to ascertain the amount of archaeological materials in areas to be inundated by reservoirs constructed for flood control, irrigation, and power development by the Corps of Engineers and the Bureau of Reclamation, so that remains of importance may be salvaged before it is too late. However, in addition, the far-ranging reconnaissances in themselves yield valuable data, for from them, as the work progresses, information on population distributions in aboriginal times and on native residence patterns is coming to light.

In addition to survey work, the office participated in three cooperative programs of excavation with West Coast universities, through the departments of anthropology of those institutions. These projects were as follows: the River Basin Surveys-University of Oregon excavations in the McNary Reservoir area, Oregon and Washington; the University of Washington-River Basin Surveys excavations in Potholes Reservoir area (Moses Lake), Washington; and the University of California-River Basin Surveys excavations in Pine Flat and Isabella Reservoir areas in California.

The work carried out in McNary Reservoir, on the Columbia River, consisted of five and a half weeks of work with a 13-man crew directed by D. Osborne, of the River Basin Survey staff. Excavations were carried out in two sites in localities in the lower part of the reservoir that are to be used as borrow areas for aggregate for dam construction. One of the sites proved to be early historic, containing both trade goods and abundant native artifacts; the other was of prehistoric date. In addition to the extensive artifact collections, a series of house pits were taken out. It is hoped that it will be possible to follow up this preliminary work during the coming years before completion of the dam, working for longer seasons and utilizing larger crews, so that the archaeology of this critical section of the densely populated Columbia River Valley may be salvaged in time. Mention should be made of the fact that the anthropology departments of a number of Pacific Coast universities aided materially by helping to recruit the student labor used in the work.

The University of Washington-River Basin Survey project in Potholes Reservoir area was under the direction of R. D. Daugherty, of River Basin Surveys. The equipment and the working force were provided by the Department of Anthropology of the University of Washington. During a nine-weeks field season, a series of prehistoric house pits were dug, and an occupation horizon somewhat earlier than the house pits was excavated. The results of this work tie in very neatly with those from the McNary dig, with both house and artifact types appearing to correspond. The University of California-River Basin Survey excavations in the upper San Joaquin drainage were manned and equipped by the California Archaeological Survey, and directed by F. Fenenga of that same organization.

It should be emphasized that the assistance rendered by the several universities in these projects was in each case material. Without it, the work could not have been accomplished. This cooperation involved diversion of resources and interest from the several anthropology departments' planned research programs, and thus clearly demonstrates recognition of the importance and urgency of the river basin salvage program.

During the winter months it is planned to operate the office and laboratory in Eugene, processing and analyzing data and collections made in the field. D. Osborne will be in charge of operations during this period.

Phil C. Orr, Curator of Anthropology at the Santa Barbara Museum of Natural History, is preparing to leave for further field work on Santa Rosa Island. His work will pri-

marily be directed toward the recovery of fossil elephant remains, but further work on aboriginal site survey is also contemplated.

Richard S. Finley, who recently joined the museum staff to assist Mr. Orr, will participate in the Island expedition. Mr. Ralph Colcord has been doing volunteer work on the museum's archaeological material, some of which is part of the Lorenzo Yates collection made in the last century. (*R.F.H.*)

MIDDLE AMERICA

Considerable archaeological activity was seen in Middle America during 1948, limited as usual to the dry first half of the year.

In Mexico many of the long-term projects of the Instituto Nacional de Antropología were continued as in previous years: Jorge Acosta working at Monte Alban, Hugo Moedano at Tula, and Wilfrido Du Solier at Tamuin in the Huasteca. García Payón, whose headquarters are in Jalapa, Vera Cruz, was in the field as usual, working principally this year at Tajin. Supervision of the Archaic site of Tlatilco and the excavation of burials found by the brickmakers have been continued by Romero Arturo and Jose Luis Avelero. The study of Tlatelolco proceeded as in former years, with the excavations under the direction of Antonieta Espejo; and a new project of excavation was begun by Carlos Margain at Teotihuacan. New and important frescoes were reported at the latter. A month's work was also undertaken at the site of Coixtlahuaca, Oaxaca, by Ignacio Bernal, Felipe Montemayor, and Jorge Obregon and included the excavation of forty small tombs.

S. Linné returned to Mexico early in the year and made an archaeological survey of the region around Iguala and Chilpancingo, and across the unknown area of eastern Guerrero and western Oaxaca via Atlixtac, Tlapa, and Silacayoapan.

For more southern areas the activities of the Carnegie Institution and associated groups are reported in the following notes received from A. V. Kidder:

"The principal field activity of the Division of Historical Research of Carnegie Institution was the second Bonampak Expedition, carried out in cooperation with the Instituto de Antropología e Historia of the Mexican Government and financed by the United Fruit Company. Bonampak, a small site of the Maya Old Empire, lies in Chiapas west of the Usumacinta River. One of its structures, a three-room temple, contains remarkably well-preserved mural paintings. One of the rooms, decorated with ceremonial scenes, was studied and its paintings recorded last year. The second and third were similarly treated during the past field season. Room 2 shows a battle and the torture of captives; the paintings in Room 3 illustrate further ceremonies. The handling of the human figure is remarkably bold and free; costumes, weapons, and ritual paraphernalia are depicted in great detail. The personnel of the expedition consisted of the artists, Sr. Augustine Villagra of the Instituto, Sr. Antonio Tejeda of the Carnegie Institution, and Sr. Hippolito Sanchez of the Campeche Museum; serving as archaeologist was Mr. Gustav Stromsvik of Carnegie Institution.

"An unexpected discovery was made near Guatemala City where, in the course of the cutting down of a large mound at Kaminaljuyu for brick making, there was encountered a large tomb of the early Miraflores phase. Work was stopped, the find was reported to Carnegie Institution, and Messrs. E. M. Shook and A. V. Kidder excavated the tomb, which yielded some three hundred pottery vessels, a so-called "Mushroom stone," and a number of jades.

"At Zaculeu, in the Department of Huehuetenango, Guatemala, the excavation and repair of this important Mam site by the United Fruit Company was continued under the direction of Mr. John M. Dimick, Aubrey S. Trik, and Richard B. Woodbury. The restoration of the main plaza was completed, including that of the one-room temple surmounting the principal pyramid. In a second plaza the structures were cleared of debris. It is planned to stabilize these, leaving them in their present state to serve as justification for such restoration as has been done in the main plaza. As in former years, much valuable archaeological material was recovered and it is now clear that Zaculeu served as a great ceremonial center from the beginning of the Classic Period until the Conquest. In a small museum erected on the site are displayed representative collections of specimens from the excavations."

S. K. Lothrop worked in Costa Rica for the Peabody Museum, Harvard University, from January to March, 1948. After opening a few graves at Las Mercedes and a reconnaissance of the Province of Guanacaste, excavations were begun near Filadelfia in the Nicoya peninsula. The purpose of this work is to form a chronological frame for the large pottery collection now in museums. A very tentative stratigraphy has been encountered and various ceramic types have been linked with the Spanish occupation. It is hoped that this program can be continued next year. (*G.F.E.*)

SOUTH AMERICA

Brazil. Mr. and Mrs. Clifford Evans, Jr. (Betty Meggers) have recently departed for Brazil where they expect to conduct archaeological field work along the lower Amazon. Former graduate students of the Department of Anthropology, Columbia University, and under the general direction of Dr. W. D. Strong, their work has been financed through generous grants by the Viking Fund and the William Bayard Cutting Traveling Fellowship of Columbia University. In Brazil they are working under the auspices of the Museu Nacional do Brazil and in cooperation with Dra. Heloisa Alberto Torres. It is intended that survey and digging will be concentrated on Marajo and Caviana Islands, the region of Maraca, and further up river at the well-known station of Santarem. This is a virgin field from the viewpoint of modern archaeology, and it is expected that stratigraphic techniques will yield excellent results. The program is scheduled to last the better part of a year.

Peru. Rafael Larco Hoyle has recently published an important summary volume, "Cronologica Arqueológica del Norte del Peru." This study summarizes the chronological results and interpretations of more than ten years of research in the Moche-Chicama sector of the north coast. The work is privately printed in Argentina but bears the Hacienda Chiclin (Trujillo) impress.

Early in 1948 a new Instituto de Antropología was established in the Universidad de Trujillo in northern Peru. Mr. Richard Schaedel, formerly a graduate student at Yale University, was named director. It is the plan of the Instituto to promote a general curriculum in anthropology at the university and to conduct field research. Introductory courses in general anthropology, physical anthropology, and Peruvian archaeology are being offered this year. Schaedel is aided by Dr. Zavaleta, of the university, and Sr. Luis Gutierrez, field assistant. Some archaeological research has been carried out at the famous site of Chan Chan near the city.

Dr. Jorge C. Muelle sends notice of recent activities as follows: Sr. Henry Reichlein, in charge of archaeological investigations in Peru for the National Center of Scientific Research of Paris, has been in Peru for some months and is now in Cajamarca where he hopes to carry out archaeological excavations and to found a regional museum for that city. A Swedish-Finnish scientific mission, under the direction of Rafael Karsten, has been established at Iquitos. From this base the group, consisting of ethnologists, zoologists, botanists, and geologists, intends to explore the immediate tropical lowlands. Although not primarily interested in archaeology, such a large party of trained people in this little-known area should result in some furtherance of archaeological knowledge, if only incidentally. *(G.R.W.)*

AAA ANNUAL INDEX OF 16-MILLIMETER ANTHROPOLOGICAL FILMS

The Executive Board of the American Anthropological Association recently approved a suggestion made by Jesse D. Jennings, National Park Service, that a descriptive file of all 16-millimeter non-commercial documentary anthropological movies owned by museums, educational institutions, and individuals, be set up in the office of the Secretariat so that a mimeographed annual Index of 16-Millimeter Anthropological Films could be circulated each year from that office to educational institutions. In circulating such an Index, it would be understood that institutions or individuals desiring to use the films would arrange for the loan, rental, or purchase of such directly from the owners of the films, and not through the AAA Secretariat.

Since all listings for the AAA Index of 16-Millimeter Anthropological Films will be of non-commercial material, the AAA Index will serve as a supplement to the H. W. Wilson *Educational Film Guide*. This latter work contains items commercially available, but does not list non-commercially prepared material.

Cooperation of all institutions and individuals who have such documentary films for listing in a central file is requested by the Executive Secretary. Information regarding existent films should include:

Title.
50–100 word description of contents.
Length of time film runs.
Number of reels.
Color or black and white.
Approximate date film was taken.
Name of photographer (if available).
Name and address of person and institution to whom applicants for the film should write.
Film available for rent, sale and/or free loan.
Sale or rental price: if rental, by week or month prices.
Owner's estimate of film: excellent, good, fair.

If owners of documentary anthropological films will cooperate immediately, it is hoped that a sizeable file can be accumulated in the Secretariat by late Fall. The first AAA Annual Index can then be prepared and mailed to educational institutions before the end of this year. All information covering the points listed above should be sent to:

Dr. Erminie W. Voegelin
Executive Secretary
American Anthropological Association
Department of Anthropology
Indiana University
Bloomington, Indiana

FOURTH CONFERENCE ON IROQUOIS RESEARCH

For the fourth time since 1945, anthropologists of the northeastern states and Canada met at Red House, New York, October 8–10, 1948, to hear reports of progress and to discuss next steps in Iroquois studies. The conference owes its attractive place of meeting, the Administration Building of Red House Lake, to the continued interest of the Hon. Charles E. Congdon, chairman of the Allegany State Park Commission, who with M. H. Deardorff of Warren, Pennsylvania, issued the invitations and acted as host. W. N. Fenton continued as general chairman of the conference.

The conference opened Friday night with an informal address by C. E. Congdon on "The Allegany Country and its Settlement," which he concluded by reiterating a hope that the Allegany State Park might again become a center of studies. An impromptu contest in singing Indian folk songs from l'Ancienne Lorette was set off by Marius Barbeau and F. G. Speck. And the spirit of whimsey carried over to the report of the Committee on Museum Studies in which Ernest Dodge assessed collections awaiting the student of Iroquois material culture and disclosed certain archival sources previously overlooked by ethno-historians. Discussion pointed to the obvious need of putting a student on the trail of this material, testing his findings in the field, and producing a series of topical reports.

The outstanding accomplishment in Iroquoian studies during 1948, however, was in the field of linguistics as manifest in the presentation Saturday morning of "Comparative Iroquoian" by Floyd Lounsbury. Barbeau led the discussion and appraised the sources for the study of Huron-Wyandot.

A seminar led by James Griffin paraded substantial achievement in archaeology on sites scattered from Maine to Georgian Bay and from Bay of Quinte south to the Maryland border. Of less interest to archaeologists, perhaps, than Byers' report on his excavations in Maine and those by which Ritchie extended his New York pre-histogram to Ontario, but of greater interest to ethnologists, were the reports by Ritchie on large Seneca cemeteries from which Schoff and Wray have taken several hundred human skeletons, Kidd's report on excavating a historic Huron ossuary, and Emerson's account of the excavation of a Huron longhouse. Carpenter and Witthoft gave parallel reports on New Jersey and Pennsylvania.

The above discussion left but an hour for the seminar on "Locality and Kin in Iroquois Culture," which was originally scheduled to set the theme for the conference. Fenton developed the theme of local differences, drawing materials from community studies at Coldspring, Tonawanda and Six Nations, and then Anthony Wallace reporting on new field work at Tuscarora and Augustus F. Brown on Onondaga, New York, brought new points of view to the field, stressing personality and culture more than structure of society. For the first time it appears likely that the Iroquois like the Navaho are becoming a social science laboratory.

The Seneca Indians of Coldspring Longhouse have virtually included the conference in their yearly round of activities. Led by Albert Jones, a larger number in costume and more besides turned out with enthusiasm for the annual Indian party in honor of F. G. Speck. They afforded abundant materials for illustrating G. Kurath's discussion of "Structural Types of Seneca Dances." They proceeded to manage their part in traditional manner, insisting on their own sequence of numbers and choosing their own speakers and interpreter. To our amazement the Johnny Johns performed the dance of the False-faces, and the Hawk Clan gave a name to Dr. George Snyderman.

Discussion turned Sunday morning to the need of a check list of manuscript materials relating to the Iroquois; second, to the applications of research and its techniques to general education; and third to the need of enlisting a physical anthropologist to work up the expanding series of crania from the area.

Those present included: Barbeau, Leechman, National Museum of Canada; M. Barnett, Carstairs, Holmberg, Leighton, M. E. Opler, Sasaki, Cornell University; Mrs. M. Blaker, Fenton, Smithsonian Institution; Brown, Miss M. Lamberson, Snyderman, Speck, Van Stone, Anthony Wallace, Miss Jane Willets, University of Pennsylvania; Byers, Andover; Carpenter, Emerson, Kidd, McIlwraith, Toronto; Congdon, Walter Edson, Allegany State Park Commission; Count, Hamilton College; de Laguna, Mrs. C. Dryden, Miss Alta Mae Harris, Bryn Mawr; Dodge, Hadlock, Peabody Museum, Salem; Griffin, A. K. Guthe, Jones, G. Kurath, Lee, Spaulding, University of Michigan; C. E. Guthe, New York State Museum; Kent, Webb, Witthoft, R. P. Wright, Pennsylvania Historical Commission; Knoll, Ritchie, Rochester; Lounsbury, Yale; Lucy, R. Wright, Society for Pennsylvania Archaeology; Miss P. Pollenz, Brooklyn; Paul Wallace, Annville; Peter K. Smith, Six Nations Reserve. (*William N. Fenton.*)

CORRECTION OF ERRONEOUS ILLUSTRATION OF A CALIFORNIA HARPOON TYPE

The writer acknowledges a regrettable error in Plate I of "Culture Sequences in Central California Archaeology" (AMERICAN ANTIQUITY, Vol. XIV, No. 1, July, 1948), which shows a *unilaterally* barbed harpoon as a coastal type in the Late Horizon (right hand column). No complete specimen is known from the coast. A *bilaterally* barbed harpoon is recorded from the coast, as described in the text (pp. 18, 19), but the single fragmentary unilaterally barbed specimen which has been found appears to be a foreign import. The specimen illustrated seems to be from the Interior Valley Zone of the Late Horizon. (*Richard K. Beardsley.*)

EXECUTIVE COMMITTEE DECISIONS

The Nominating Committee for next year will consist of W. C. McKern, Chairman; J. Alden Mason; and Douglas Byers. William Duncan Strong has been unanimously chosen representative of the Society to the Inter-American Society of Anthropology and Geography. (*G. I. Q.*)

TEPEXPAN MAN NOT INTRUSIVE

In the last issue (Vol. XIV, No. 1, p. 80) we quoted from the *American Anthropological Association News Letter* a statement that the bones of Tepexpan Man were now believed to be intrusive into the Pleistocene layer in which they were found. We are informed by Dr. de Terra, one of the persons to whom this statement was attributed by the *News Letter*, that it is incorrect. Tepexpan Man is still considered to be of Pleistocene age.

To quote from Dr. de Terra's letter to the editor of the *News Letter*, "It seems that your informant confused Tepexpan with the site of Tamazulapan in the State of Oaxaca, which Drs. Eiseley and Sears visited with me and several Mexican colleagues, a site from which human fossil remains had been reported last March. This is the locality where one of Professor Sauer's students last summer had noticed mammoth remains in a layer containing human bones. Detailed inspection of the site and excavation revealed that a body had here been buried with two pots which the archaeologists Margain and Du Solier consider of pre-Columbian date. I sent a report about my impressions to Dr. Paul Fejos of the Viking Fund.

"As for the age of Tepexpan Man, it seems now that it was preceded by an earlier people. From the sand pits near Totolzingo, a village one mile distant from the fossil man site, I extracted three bone points in association with remains of extinct horse (*Equus cf. Semiplicatus*), elephant, and deer. It was here that a villager from Tepexpan brought me last year the miniature bone sculpture of a human foot executed in the fragment of an elephant molar. The sandy matrix adhering to this artifact was found to be identical with the sand of the El Risco I beach near Totolzingo. Now that I have found bone points from the same locality, I have no hesitation in stating that Early Man lived on the shores of prehistoric Lake Texcoco at the height of the last Pluvial, which can be correlated with Wisconsin III. Other artifacts were found in alluvium of similar age near Tequixquiac, and curiously enough, it was here that the carved bone of an extinct llama was found and reported on some 60 years ago by Barcena.

"Such multiple evidence makes it rather certain that Early Man used bone for tools and artistry some 20,000 years ago in the Valley of Mexico."

The editor of the *News Letter* has acknowledged this mistake and is publishing a correction in the next issue. We regret having spread the misstatement by including it in the columns of AMERICAN ANTIQUITY. (*I.R.*)

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